TECHNOLOGY DEPARTMENT

Flow

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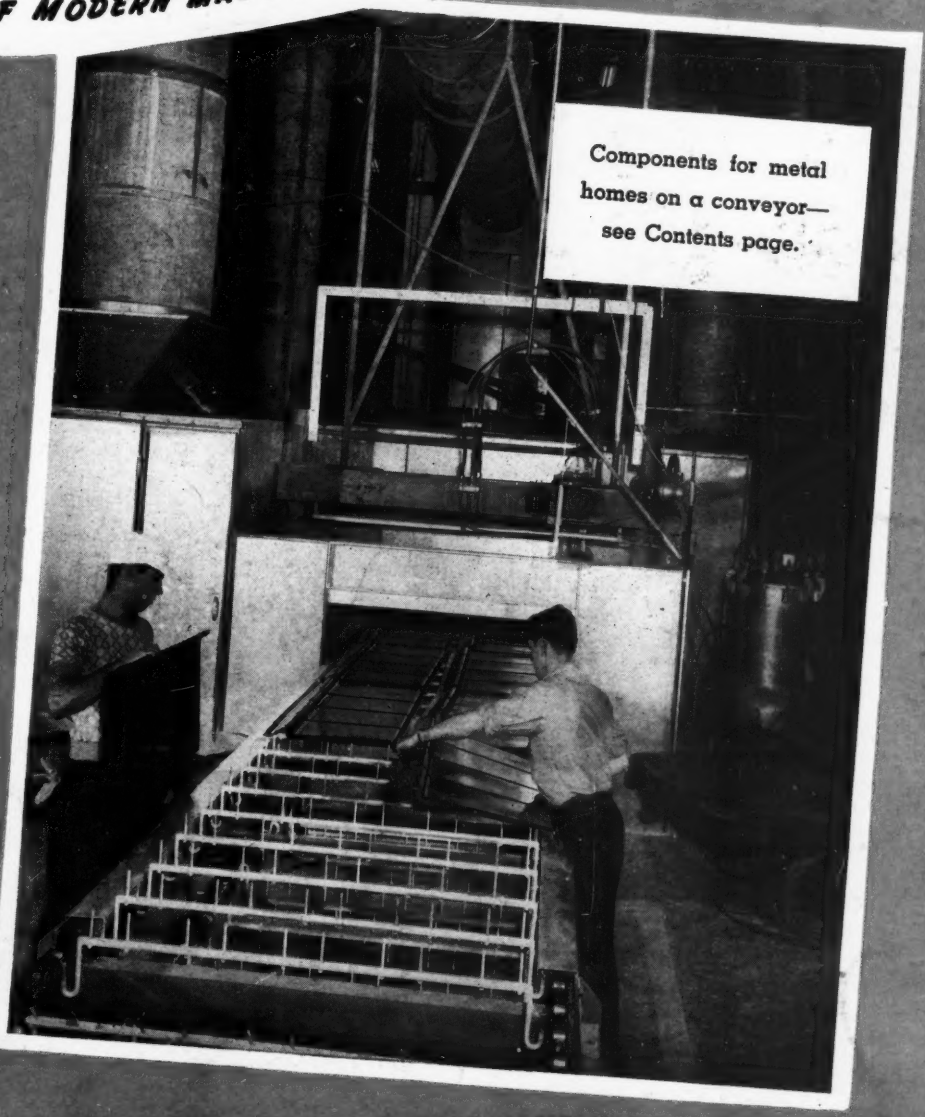
DETROIT

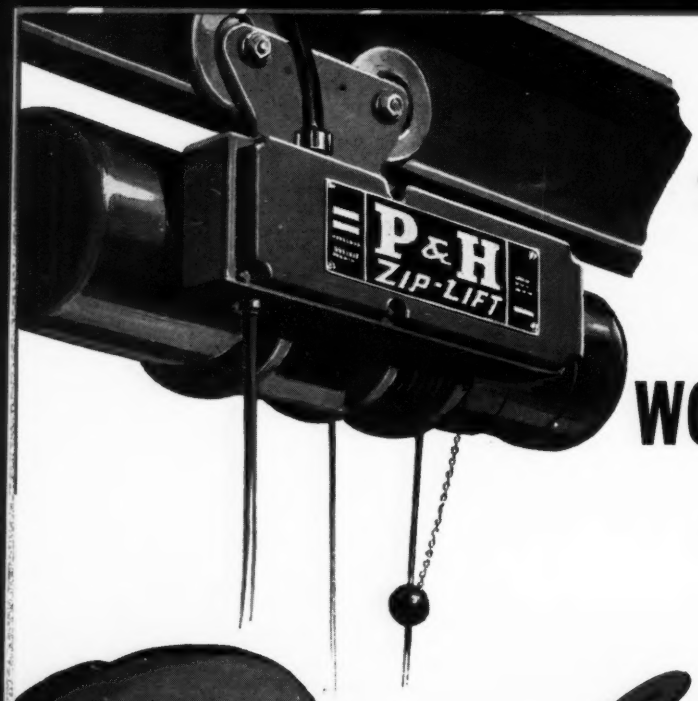
THE MAGAZINE OF MODERN MATERIAL HANDLING AND PACKAGING METHODS

MAY
1949



Components for metal homes on a conveyor—see Contents page.

IN THIS ISSUE: Scrap Conveyor In Sheet Steel Mill . . . Maintenance, Part II



THE "ZIP" WORKS FOR PENNIES – SAVES DOLLARS Every Day!

Want to cut handling costs? Then take a tip — buy a Zip! It's a small investment that pays off in big savings, and not just for a year or two but for years to come.

There's no compromise in design. It's quality-built—from interchangeable mounting right down to the lifting hook — with features you'd expect only in far costlier hoists.

That's what makes the Zip-Lift the fastest selling wire rope hoist on the market. Ask a P&H representative for facts. Or write us today.

Handle it "Thru-the-Air"

P&H ZIP-LIFT

Look At These Added Values

SAFER — Full magnetic control with control current reduced to 110 volts at the push-button. Plugging crane type limit switch and large double brakes provide maximum safety. No open wiring.

LIFETIME CONSTRUCTION — Precision built — shaved gears running in oil — grease-sealed antifriction bearings — fully enclosed, moisture-proof, dust-proof, acid-proof.

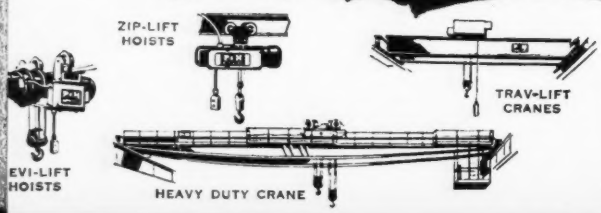
SMOOTHER OPERATION — Motor specifically built for hoist service — to withstand frequent reversal. Loads controlled within a fraction of an inch.

ALERT SERVICE—Out-of-stock delivery from qualified dealers everywhere—backed by 18 branch offices and 8 conveniently located warehouses.

The Zip-Lift is America's fastest selling wire rope hoist. Handle it "Thru-the-Air" at lower cost.

See how handling problems like your own can be solved by the Zip-Lift. Send for this picture-filled book of ideas, applications, specifications, etc. Ask for Bulletin H20-4.

Available in Capacities up to 2000 lbs.

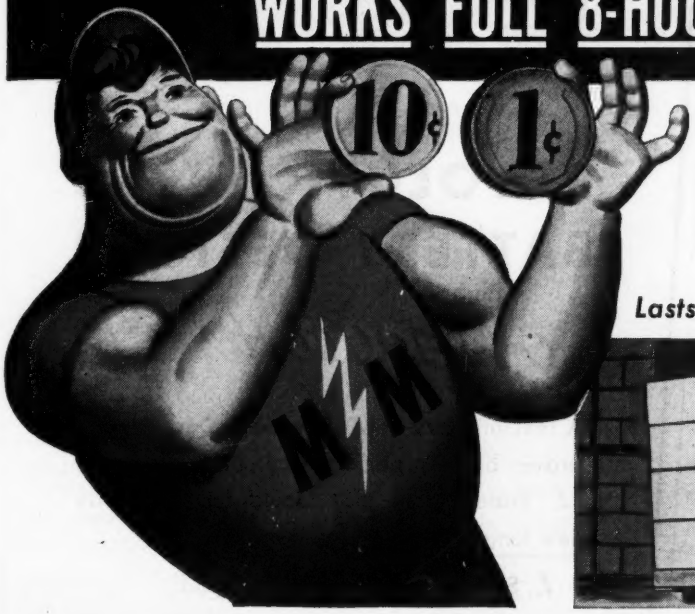


P&H ELECTRIC HOISTS
4643 West National Avenue
Milwaukee 14, Wisconsin

HARNISCHFEGER CORPORATION

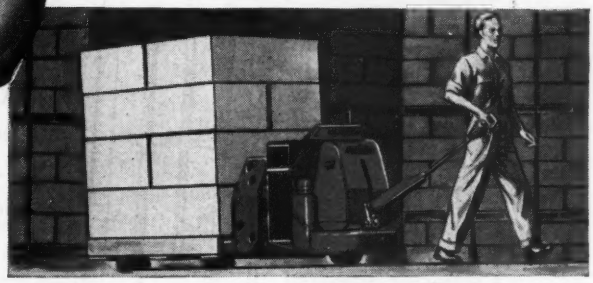
AMAZING AUTOMATIC ELECTRIC TRUCK CUTS HANDLING COSTS IN HALF

WORKS FULL 8-HOUR DAY FOR 11c!*

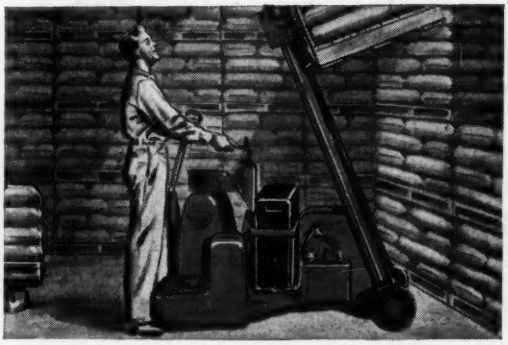


Hauls and stacks tons of products with push-button ease

Lasts Many, Many Trouble-Free Years!



CUTS HANDLING COSTS THOUSANDS OF DOLLARS



IMAGINE an electric truck that works a full 8-hour day for as little as *11c a day battery charging cost . . . and cuts your handling costs in half . . . savings amounting to thousands of dollars, depending on the tonnage you move in your plant.

That's what amazing Automatic Transporter will do for you . . . lift and move 2,000, 4,000 and 6,000 pound loads with feather-touch of thumb on electric control buttons.

Note its effortless operation in the picture above. Could anything be easier, more efficient, time saving? And how it "lightens labor's load." Muscle Mike, the brawny midget of electrical power in its motor does all the work. One man does more with less effort than three hand truckers, releasing labor for more productive work.

Transporter's bigger sister, the new Tilting Type Transtacker, also STACKS your product . . . gives you faster, safer load spotting and cradling . . . with a single lift of 64 inches and a telescopic lift of 120 inches.

Here's an extra bonus of free storage space to heights manual handling couldn't touch. See the picture to the left . . . *picture* the dollars saved it will bank for you. Works long, steady on same battery as Transporter . . . operating cost is fantastically low.

Transtractor, shown lower left, will push or pull 6000 pounds all day long or up to 20,000 pounds intermittently. Again, finger-tip control, low cost Transporter battery operation.

Either one, or all of these Transtriplet miracle electric trucks will do a material handling job that will total up to savings that will astound you . . . with operating cost a minor factor. Let us tell you, and show you more in our free material handling catalog. Mail coupon.

Transporter
A PRODUCT OF AUTOMATIC
Lightens LIFE'S LOADS

AUTOMATIC TRANSPORTATION CO.
DIV. OF THE YALE & TOWNE MFG. CO.
141 West 87th Street, Dept. E-9, Chicago 20, Ill.

Send me complete facts and FREE catalog describing fully ( ) Transporter ( ) Transtacker ( ) Transtractor, and the material handling savings they can bring my business.

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By .....

Street Address .....

City ..... *Zone* ..... *State* .....

New GOULD "Z" Plate

REVOLUTIONIZES BATTERY DESIGN!

Only GOULD *Has It!*

A revolutionary new plate design greatly improves battery performance. The new Gould "Z" Plate means that Gould batteries stay new longer! Here's why:

1. Solid, non-porous positive grid.
2. All grid members are heavy with same cross section.
3. Regenerative oxide renews itself throughout battery service.
4. More active material per battery pound.

Brand new from Gould's modern laboratories and pilot plant. Available shortly in all "Thirty" and "Kathanode" types. Ask for literature on how Gould's new casting techniques improve battery performance.

The Gould "Thirty"
More than ever—America's
Finest Industrial Truck Battery.

GOULD

STORAGE BATTERY CORPORATION

TRENTON 7, NEW JERSEY

Always Use Gould Automobile and Truck Batteries

Flow

VOL. 4, NO. 5 • MAY, 1949

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All communications should be addressed to FLOW Magazine, 1240 Ontario Street. Cleveland 13, Ohio.

Flow Magazine is affiliated with the Industrial Publishing Company, which also publishes:

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CONTENTS

COVER PHOTO—Factory mass-production methods are enlisted in easing the housing shortage. Lustron Corp., Columbus, manufacturer of a metal home, is using miles of conveyor to speed completion of components. Shown here are roof panels entering an automatic spray enameling machine on a pin-type conveyor.

FEATURES

PACKAGING MECHANICS SECTION

DEPARTMENTS

FLOW is indexed regularly by Engineering Index, Inc.

SUBSCRIPTION RATES
United States and possessions—$3.00 per year, $5.00 for 2 years, $6.50 for 3 years.
Canada—$4 per year, $6.00 for 2 years.
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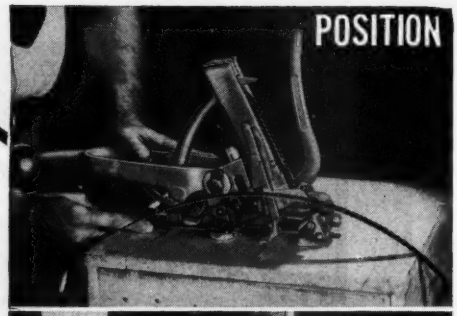
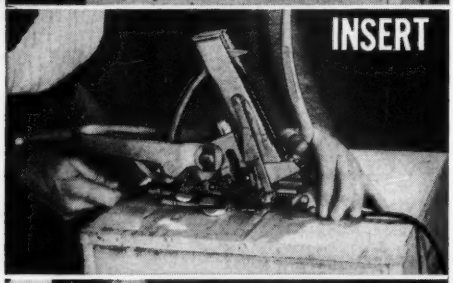
"Acceptance under the act of June 5, 1934, at Milwaukee, Wisconsin, authorized August 15, 1947."

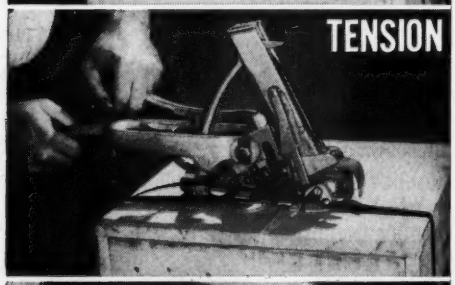
4 STEPS 5 SECONDS

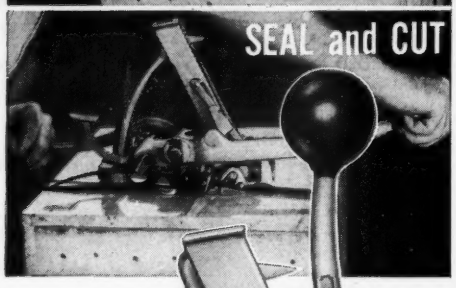
with the Improved

STANLEY ACE STRAPPING TOOL



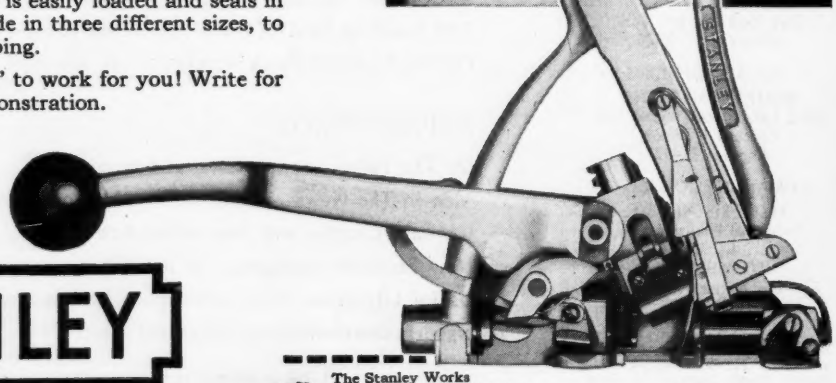






Here's how to put strapping on a production basis. This improved STANLEY ACE STRAPPING TOOL is light — fast — simple — even a beginner can make time with it. Magazine holds 75–100 seals — is easily loaded and seals in any position. The "Ace" is made in three different sizes, to handle ⅜", ½" and ⅝" strapping.

Decide now to put the "Ace" to work for you! Write for full information or ask for demonstration.



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HARDWARE · HAND TOOLS · ELECTRIC TOOLS

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Steel Strapping Division
203 Lake Street, New Britain, Conn.

Gentlemen: Please send me free folder on the Improved ACE Strapping Tool.

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MOVE MORE...SAVE MORE

Production is material in motion. That's why Yale Material Handling Machinery is so important to *your* business. Whether you use Yale Trucks, Hoists or Scales, the big advantages you get are faster handling of more material per day, greater production with less effort, better conditions of safety and the good will of employees relieved of heavy lifting and moving jobs. Result: far lower costs!

Regardless of what you receive, process, or ship, there's a Yale tool to keep it "on the move." Our nearby representative will gladly help you select the right lift truck, hoist or scale to give you the production efficiency and economy you want. See your telephone book or write direct to headquarters.

YALE
TOOLS THAT KEEP INDUSTRY "ON THE MOVE"

THE YALE & TOWNE MANUFACTURING CO.
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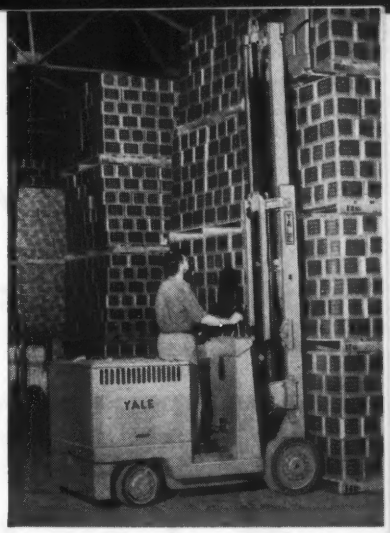
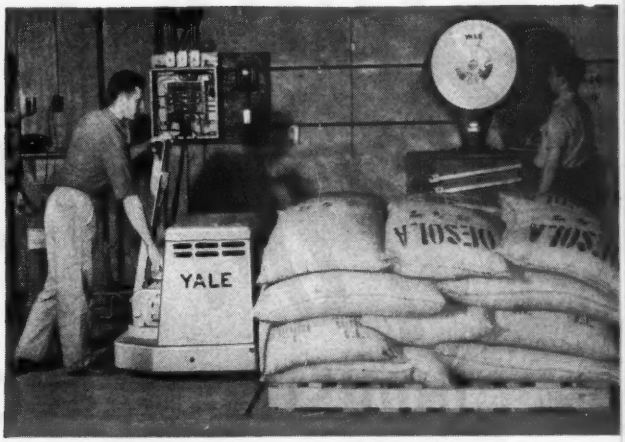
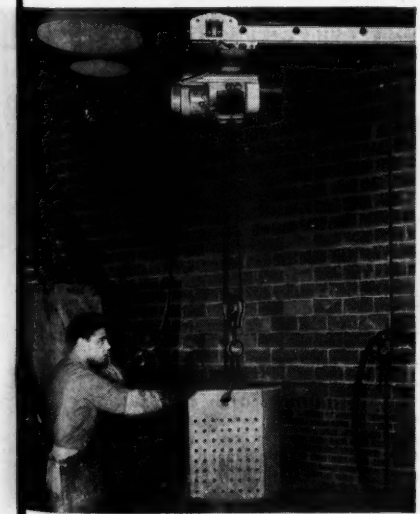


High stacking provides wider aisles, make storage facilities hold more, saves the expens of new buildings. Yale High Lift Fork, Ran and Platform Trucks assure such efficiency

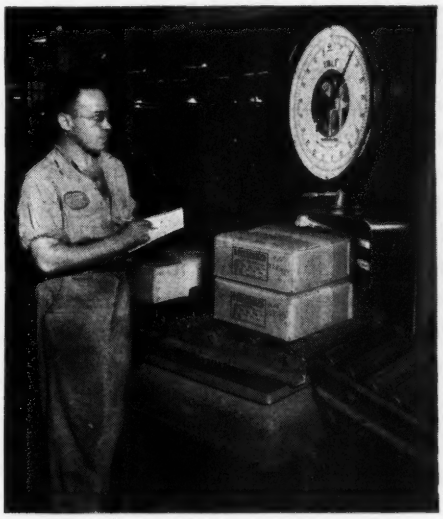
Fewer trips per day, less lugging and tugging—big capacity Yale Hand Lift Trucks nail down costs by freeing men's time for productive work.



Multi-unit loads lifted and moved by Yale Worksaver Pallet Truck save time and effort, eliminate much costly, hazardous rehandling.



"Safety First" for worker and load—that's what easy-to-use Yale Hand and Electric Hoists provide, aside from their fast, money-saving efficiency.



Accurate weighing means accurate shipping costs. Yale Load King Scales are made in types and capacities that "fit in" with material handling operations.

The difference between profit and loss ofte depends on accurate weight and count. Onl Yale Load King Scales give you MAGNET ROL weighing and counting accuracy.

YALE
MATERIAL HANDLING MACHINERY

No matter which advantage...

YOU'LL FIND THEM ALL IN

Battery-Powered

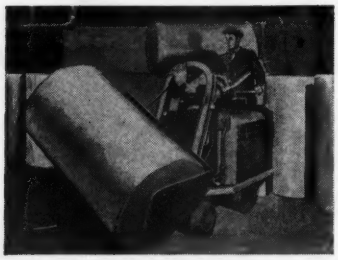
INDUSTRIAL TRUCKS

For handling costs that *stay* lowest, there's nothing to beat unit loads *and battery-powered industrial trucks.* From power-source through every detail of construction, electric trucks are specifically designed to give you unit-load handling dependably, efficiently, safely—*at lowest cost per ton handled.*

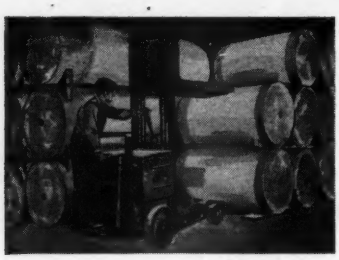
These lower costs are being realized in handling and distribution *throughout whole industries.* Both you and your supplier profit, for instance, when you specify unit-load packing. You save again through unit-load handling in your own operations. Then you and your consignee profit when you ship in unit loads.

Put this new formula to work cutting costs for you—specify unit loads *to* your plant . . . *in* your plant . . . *from* your plant. And for greatest efficiency in your own industrial trucking, specify battery power.

MAXIMUM DEPENDABILITY—A metal refiner says, "Business was increasing, we had to have a method of material handling on which we could rely. We investigated . . . and switched to battery power."



LONG LIFE—LOW DEPRECIATION COST. This veteran has handled better than 1¼ million tons of paper in 20 years. (Over 90% of the electric trucks sold in that period are still in constant service.)



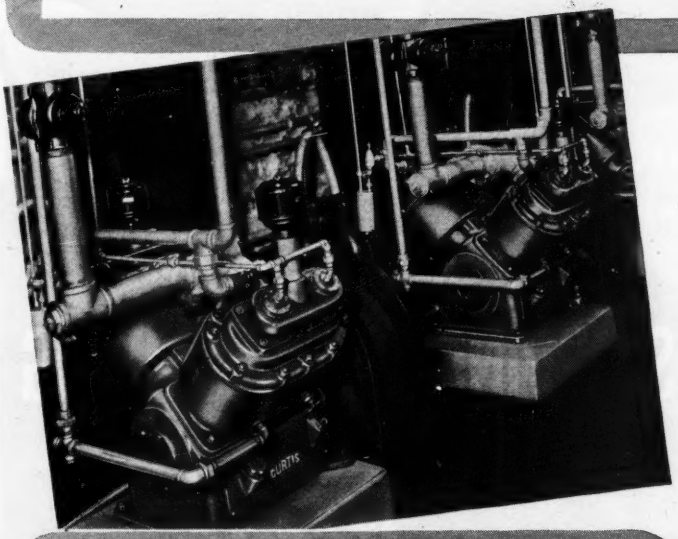
LOW OPERATING COST—Battery-powered truck operated by a newspaper publisher, 49 hours per week, costs "a little less than $5 a week . . . for power, battery costs, parts, grease and oil," says the owner.

SAFETY, CLEANLINESS—For the handling of inflammable raw cotton and the chemicals used in treating his finished products, a surgical dressing manufacturer finds that "electric trucks are ideal." No fire hazard, no product contamination.

THE ELECTRIC INDUSTRIAL TRUCK ASSOCIATION

29-28L FORTY-FIRST AVENUE, QUEENS PLAZA, LONG ISLAND CITY 1, N. Y.

Air for any use



CURTIS AIR COMPRESSORS

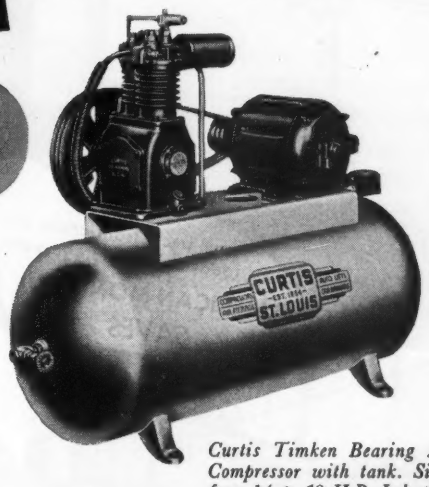
Curtis Air Compressors are providing an adequate, economical supply of air to meet every imaginable requirement throughout the world.

CURTIS (Timken Bearing Equipped) Compressors offer —

- Large capacity per dollar of first cost
- High volumetric and mechanical efficiency assuring maximum air delivery per unit of power input
- Low maintenance expense

You get these advantages because Curtis Air Compressors have such design advantages as —

- Timken Roller Bearings
- Carbon-free disc valves
- Fully enclosed crankcase
- Accessible for inspection, adjustment or replacements
- Precision made
- Self-oiling—positive lubrication



Curtis Timken Bearing Air Compressor with tank. Sizes from ¼ to 10 H.P. Industrial Air Compressors up to 50 H.P.

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PNEUMATIC MACHINERY DIVISION
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Write today for full information, or use coupon below.

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I am interested only in items checked below:

☐ Air Hoists
☐ Air Cylinders
☐ Air Compressors

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Interlocking cranes move pipe over large dock area.
AMERICAN MONORAIL SAVES

Crane on swinging jibs loads parts from fabrication.
AMERICAN MONORAIL SAVES

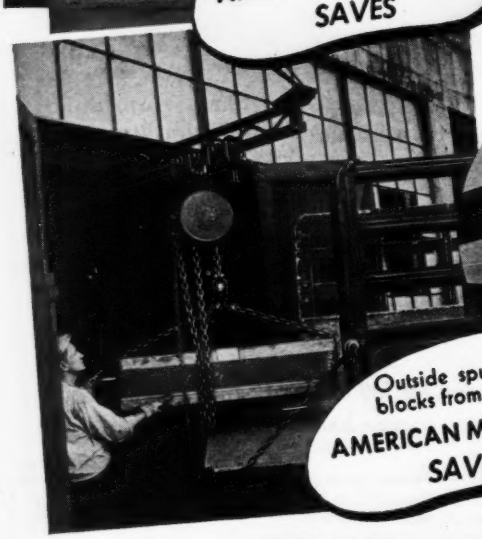
To Reduce Cost of

SHIPPING and RECEIVING

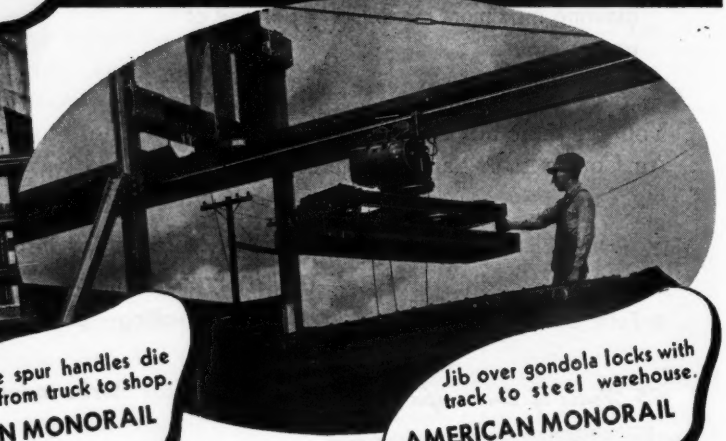
Steel

Use AMERICAN MONORAIL Overhead Handling Systems

Spur track from crane unloads coil to storage yard.
AMERICAN MONORAIL SAVES



Outside spur handles die blocks from truck to shop.
AMERICAN MONORAIL SAVES



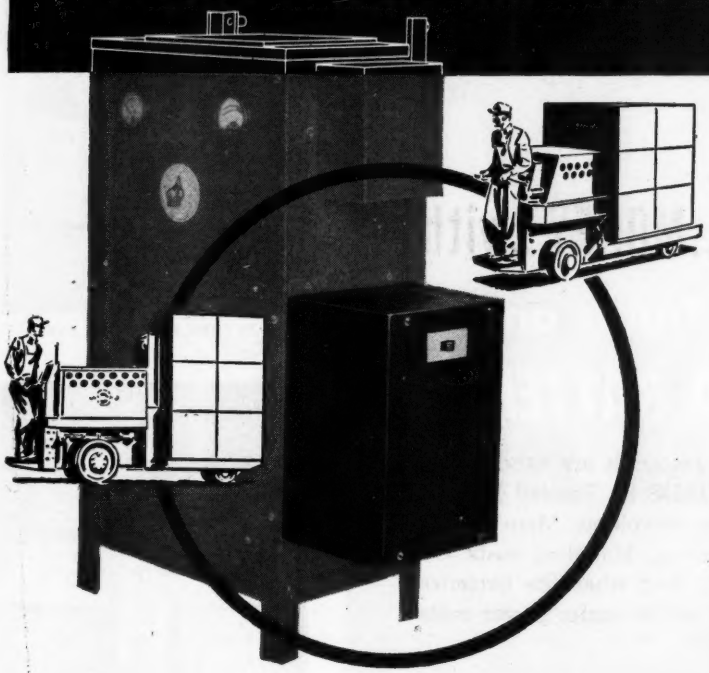
Jib over gondola locks with track to steel warehouse.
AMERICAN MONORAIL SAVES

THE AMERICAN MONORAIL COMPANY

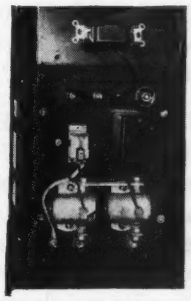
13129 ATHENS AVENUE — CLEVELAND 7, OHIO

Now
double the use of your copper-oxide battery charger.

With the new G-E Sequence Charge Control, a single-battery charger handles 2 batteries



Imagine two batteries on one rectifier charger! That's just what you get with the new G-E Sequence Charge Control. Hook up two batteries instead of one at closing time—and by morning you have two fully charged batteries. No experts needed. No supervision necessary. Simply clip on the batteries, set the time control to the proper charge and forget it. The Sequence Charge Control does the rest—even to automatically cutting out the charger when a full charge is reached.



Here's how it works

Both batteries are connected to the charger. The time control is set and the charging starts automatically—in sequence. First one battery receives a high-rate charge until it's about 85 per cent charged. Then automatically the other battery receives its high-rate charge. Here the charging rate changes—again automatically. Both batteries receive, simultaneously, a safe, finishing rate charge until they are up to full capacity. At this point, the charger automatically cuts out. (Should you have only one battery to charge, flip a switch and it operates as a single-battery charger.)

A MONEY-SAVER FOR YOU With a G-E Sequence Charge Control installed on your present—or new—copper-oxide battery charger, you can handle twice as many batteries. Yet the cost is much less than that of an additional charger. You still retain every single feature of G-E copper-oxide battery chargers that has made them industry's favorite—automatic operation, two-rate charging, practically no maintenance, complete flexibility and 100% dependability. You'll want more information! Send in this coupon today—for the latest short-cut in material-handling costs.

GENERAL ELECTRIC

Section E-456-201
Apparatus Department
General Electric Company
Schenectady 5, N. Y.

I want more information on the G-E Sequence Charge Control:

☐ Please have a G-E representative call.
☐ Please send me, free, Bulletin GEA-5272

Name ..... Title .....
Company .....
Address .....
City ..... Zone .... State .....

DEPENDABLE

POWER

Save TIME...SPACE...MONEY...with

Battery Electric Trucks and

EXIDE-IRONCLAD BATTERIES

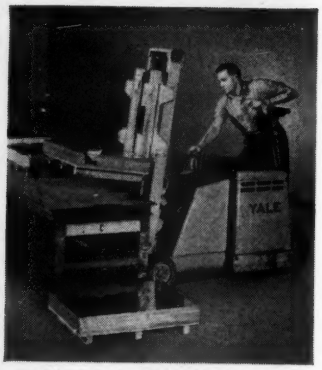
You gain in many ways when your materials are handled the efficient, modern way—in UNIT LOADS by Battery Electric Trucks. Goods move faster and in greater volume. More storage space can be utilized by higher tiering. Handling costs are reduced . . . often as much as 50%. And when the batteries are Exide-Ironclads, you can count on minimum power costs and full shift availability.

EXIDE-IRONCLAD BATTERIES are DIFFERENT . . . in construction . . . in performance. They have ALL FOUR of the characteristics a storage battery must have to assure maximum performance from battery electric industrial trucks—high power ability, high electrical efficiency, ruggedness, and a long life with minimum maintenance. This combination assures years of day-in, day-out service with dependability, safety and economy.

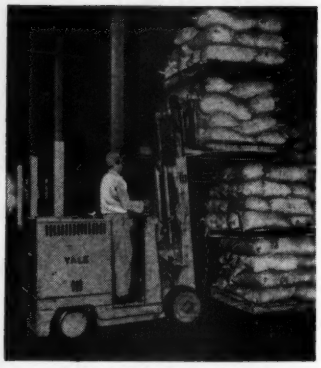
Write for further particulars and FREE copy of Exide-Ironclad Topics, which contains latest developments in materials handling and shows actual case histories.

1888 . . . Dependable Batteries for 61 Years . . . 1949

THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia 32
Exide Batteries of Canada, Limited, Toronto

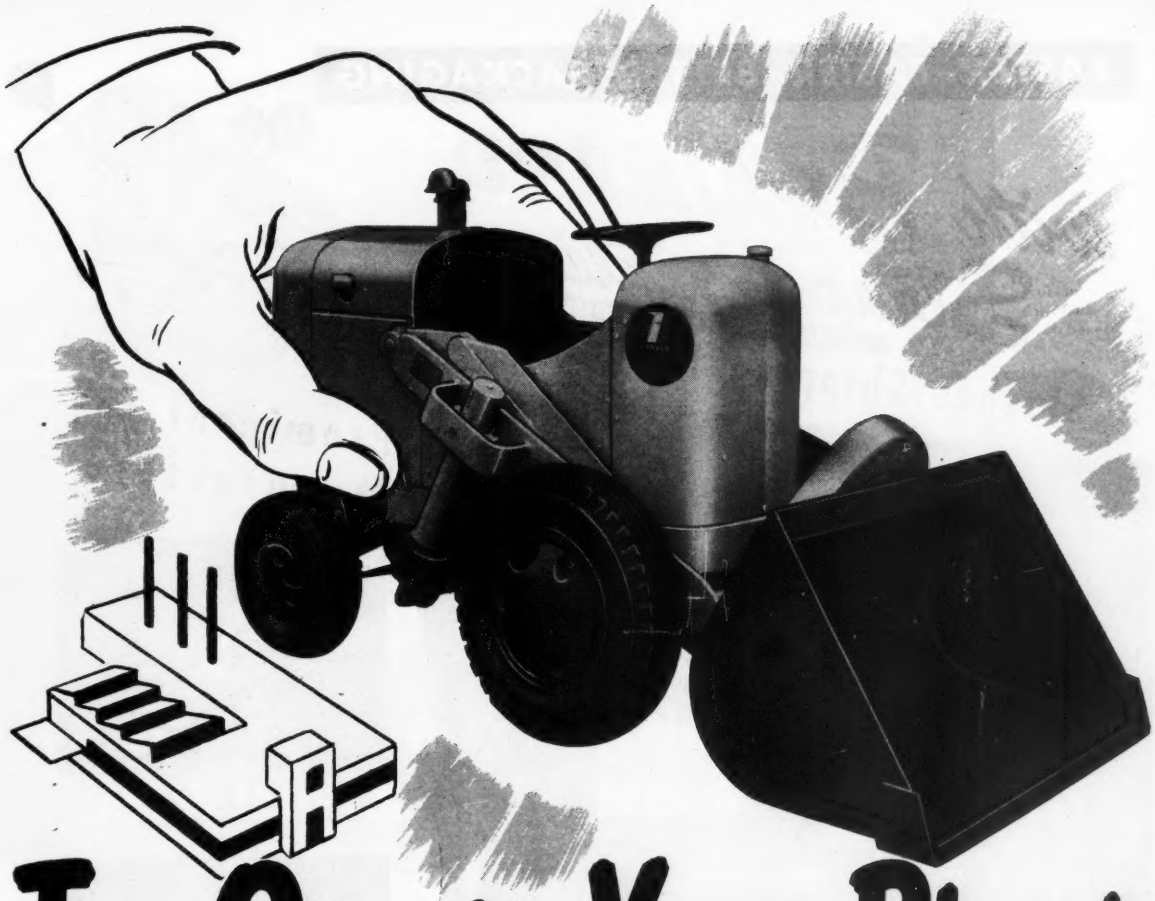


YALE FORK LIFT WORK SAVER



YALE FORK LIFT TRUCK

"Exide-Ironclad" *Reg. Trade-mark U.S. Pat. Off.*



Try One in Your Plant

Payloaders have been waging a winning war against high bulk material handling costs ever since their introduction. Today, Payloaders are used in every industry that has bulk materials to move, and many individual companies own fleets of these versatile Tractor Shovels.

And no wonder! . . . for Payloaders are basically designed and built with the power, strength, speed and maneuverability to provide a fast, flexible and efficient bulk material handling system . . . to boost output per manhour . . . to handle the largest loads per operation. They scoop up full loads of any bulk material and carry them in and out of box cars, over floors or bare ground, up ramps, through narrow, congested areas. They dump their loads into piles, trucks, bins, containers, hoppers—high or low, slow or fast—by operator-controlled hydraulic power. Large pneumatic tires, unusual power, several speeds in either direction, separate forward-reverse shift, automatic digging action and even-keel carrying position all help account for the Payloader's ability to perform these operations fast and efficiently.

Learn how Payloaders can help with your bulk material handling problems. Your Hough Distributor can cite near-by applications and give you full facts—or write The Frank G. Hough Co., 731 Sunnyside Avenue, Libertyville, Illinois.

SEND for literature on any Payloader: the 10½ cu. ft. Model HA; the ¾ yd. Model HF; the 1¼ yd. Model HL; the 1½ yd. Model HM.

SAY HUFF

HOUGH

PAYLOADER

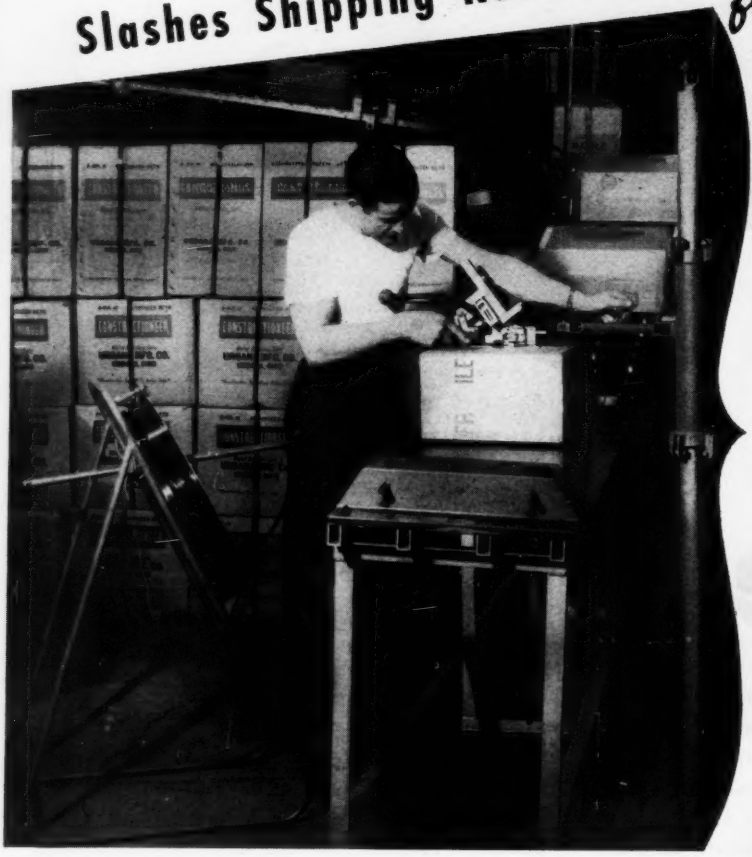
Manufactured by THE FRANK G. HOUGH CO.

FASTER–EASIER–BETTER PACKAGING

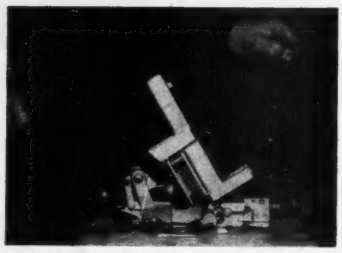
with BRAINARD Strap-O-matic

BRAINARD STRAPPING SYSTEM

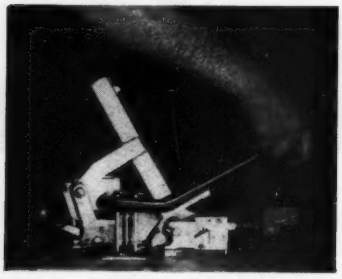
Slashes Shipping Room Costs for Prominent Toy Manufacturer



The Urbana Manufacturing Co., manufacturers of the popular **Constuctioneer** metal building set, found that as much as 40 percent of their payroll went into handling of their product. To lower these costs Urbana officials consulted Brainard's packaging experts. Today a gravity conveyer system carries boxed toys into the shipping room where one man operating a Brainard Strap-O-Matic readies them for shipment in a matter of seconds. The result is a steady flow of production, smaller inventories, quicker deliveries, better utilization of space and minimum shipping room costs. Remember handling adds nothing to the value of the product — Cut your handling costs — Write Brainard today.



TENSIONS—Just a gentle, natural pull on left hand lever tightens the strap snug about the package.



SEALS—Hold left lever back, push forward on right hand lever.

CUTS—Now, a natural forward movement of the left lever and the package is bound, ready to go. And by utilizing the special Strap-O-Matic counter-balance tool holder Strap-O-Matic stays in position, ready for the next package — further speeding operations.

SHARONSTEEL

BRAINARD STEEL COMPANY

WARREN, OHIO Dept. F-59

BRAINARD STEEL CO. Dept. F-59 WARREN, OHIO

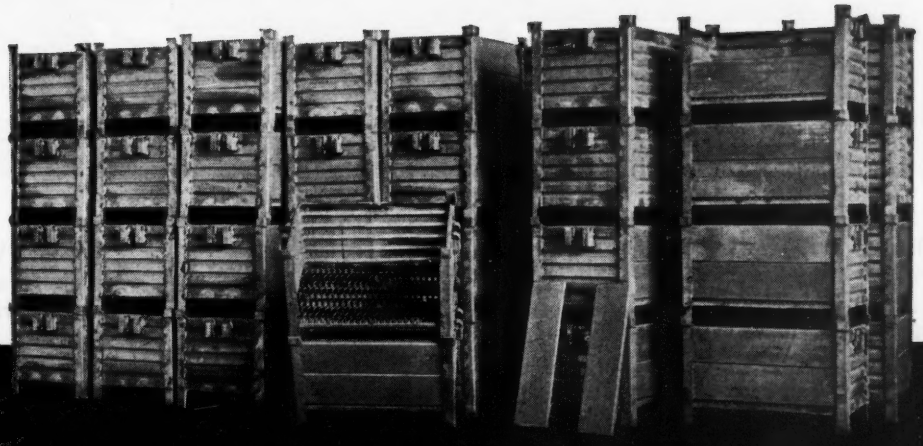
Please send me further information about Strap-O-Matic and the Brainard High Production Strapping System.

Name.....

Title.....

Company.....

City.....Zone.....State.....

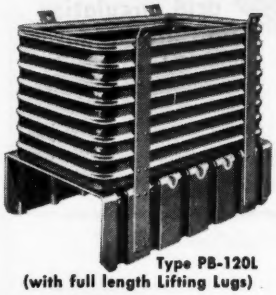


Truscon Open-Side Steel Boxes

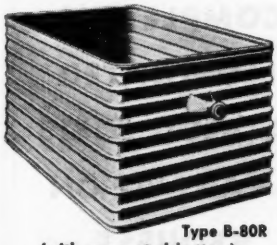
TRUSCON

Speeds PLANT *Efficiency*

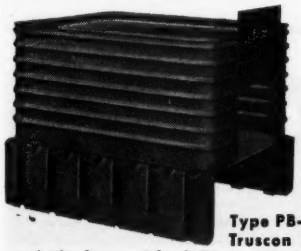
WITH STEEL BOXES AND SKIDS FOR MOVING & STORING MATERIALS



Type PB-120L (with full length Lifting Lugs)



Type B-80R (with corrugated bottom)

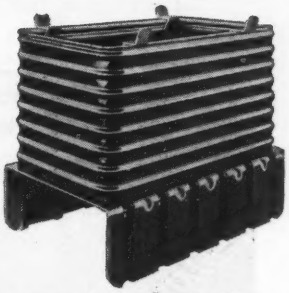


Type PB-650 Truscon Box and Platform with sliding end door

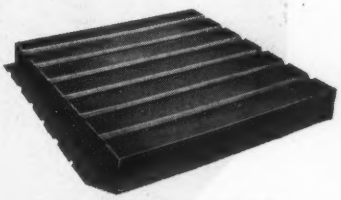
TRUSCON OPEN-SIDE BOXES *(shown above)* . . . speed efficiency through side-loading and tiering. Materials are easy to store, easy to get at, easy to inventory!

TRUSCON MATERIALS HANDLING EQUIPMENT . . . speeds efficiency because boxes, pallets and platforms are designed to properly fit modern lifts, and are ruggedly built to stand the gaff of factory use.

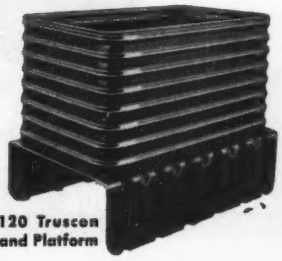
Send for catalog, complete with specifications and details, on Truscon Materials Handling Equipment.



Type PB-120T Truscon Steel Box and Platform with Tiering Lugs



Truscon Double Face Steel Pallet



Type PB-120 Truscon Steel Box and Platform

TRUSCON STEEL COMPANY

PRESSED STEEL DIVISION

6100 Truscon Avenue • Cleveland 4, Ohio

Subsidiary of Republic Steel Corporation

FIVE-FOLD Slyver-Clad

● **KOROSEAL** Perforated Retainer . . . two used . . . bottom grid frame completely insulated . . . envelopes entire plate and presses against Slyver and two glass mats.

● **MICROPOROUS RUBBER SEPARATOR** . . . impervious to heat, electrolyte and oxidation . . close spaced for uniform pressure against Slyver-clad plates . . . high porosity and low electrical resistance.

● **SLYVER** . . . thick layers of infinitely fine glass fibres . . . laid parallel in vertical position . . America's BEST retention.

● **EXPANSION MAT** holds Slyver firmly in place . . . provides expansion space to eliminate unnecessary element strains.

● **SECOND EXPANSION MAT** completely envelopes both plate surfaces and sides . . . permits free acid circulation . . a third insulator.

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Note to Management:

This Man Makes a Profit for You

IN the last few weeks several notable, though relatively small, price decreases have been announced in the automobile industry. Other industries have announced price cuts. It may be assumed that these reductions have been made to attract the buyers who have refrained from making commitments because they believe the prices have been too high.

This is probably good business but it puts a great strain on those companies confronted with the necessity of cutting prices before they have had any sizable labor cost adjustments, or any important raw material cost decreases. In such cases, any price reductions must come either from profits or from more efficient manufacturing methods, i.e., efficient material handling methods.

Many plants will never be able to realize savings from proper material handling because they do not organize for it properly.

Too many managements are prone to pay lip service to the science of material handling by relegating it to Tom, Dick or Harry. Smart management realizes that to get the full measure of the savings possible, it is necessary to delegate this work to a trained material handling engineer. It is high time that material handling be treated the same as any other engineering function. It is just as important if not more so.

When management worries about paying too much in taxes it turns to its tax expert or accountant. When management wants to stylize and modernize its product it turns to an industrial designer, and when it wants to re-engineer its product functionally it turns to its engineering department. But, when it can save great gobs of money by proper material handling methods, it turns to TOM, Dick or Harry—and starts praying.

Many companies have selected men from their ranks and encouraged them to become specialists in material handing and have created the specific title of "Material Handling Engineer". Such companies have done this because they have seen and experienced the amazing savings accruing from departments which have been properly organized to specialize in the science of material handling.

Comparable savings (if any) will elude the "Tom, Dick and Harry" companies.

P. S. The use of the word "savings" here can mean the ability to become and stay competitive—or the ability to stay in business.

Irving B. Hexter

Publisher

STUDY OF THE LOAD UNIT METHOD . . . at John Deere Planter Works

TRAVELING BRIDGE CRANE, FLOOR TRUCKS, ANGLE IRON SLINGS, FORK LIFT TRUCKS, TOTE BOXES, RUBBER-TIRED DOLLIES, DUMP-TYPE SCOOPS, STACKING RACKS

This load unit system, tailor-made to limited floor load and elevator capacities, extends from raw steel storage through fabrication, machining, finished parts storage, assembly — embracing hundreds of types of parts and finished products. Simplicity is the keynote of this system which has brought tremendous operating improvements and economies. A 48 per cent volume increase is handled with a 20 per cent increase in workers. And the work is easier, safer, and good housekeeping is conspicuous.—Ed.

By A. J. IMMESOETE

Material Handling Engineer

John Deere Planter Works of Deere & Co.

Moline, Illinois

PART 1

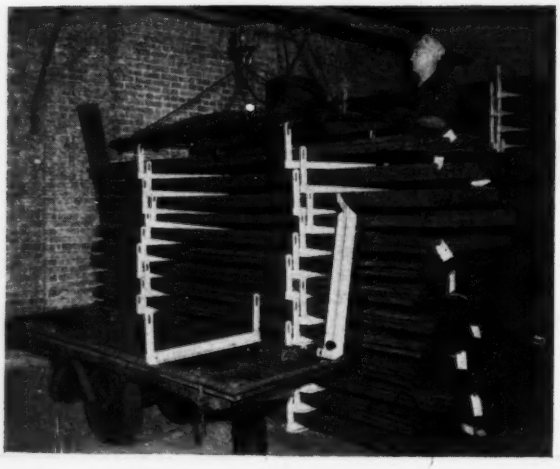
THIS Moline plant of Deere and Co. is devoted to the production of corn and cotton planters (with attachments) and disk harrows. Each of the 17 decentralized works of Deere & Co. manufactures a particular product for which it is entirely responsible.

Scope of the Problem

In designing and launching our load unit system several years ago we had to consider a number of factors, some of which stemmed from buildings that had served for decades, others from the complexity of numerous types of materials and parts.

The limited elevator capacity and floor loads in our multi-story mill type buildings indicated a one-

ANGLE IRON SLINGS in steel storage, with push truck. Its bed is jig with positioning members.



TOTE BOXES with load-supporting ledge outside. Design details are given in this article.

ton top limit of all loads which would ultimately be delivered to our upper floor assembly departments. Accordingly, we standardized on 2000 lb. capacity pneumatic tired fork lift trucks with a lift of 108", and 1000 lb. trucks for hardware storage and distribution. Pallet handling applied only to a fractional part of the total project; long lengths of steel, circular harrow blades and cumbersome finished assemblies required special study. In some cases special-purpose carriers were developed or standard fork truck attachments were modified. The capacity of such existing capital equipment as bridge cranes had to be taken into consideration in connection with raw steel handling. Finally, simplicity of procedures, safe practices and good housekeeping were major objectives along with economy of operation.

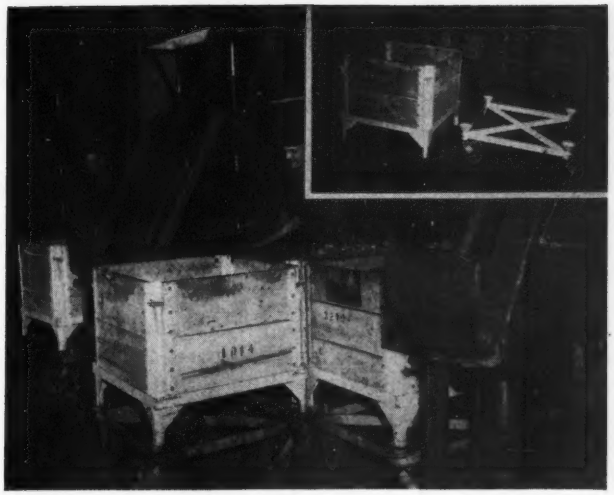
The problems were attacked and solved over a period of time. The project is a continuing one, and some of the solutions presented here have been of fairly recent origin. This description is a survey of the load units in their various forms.

Angle Iron Slings for Raw Steel

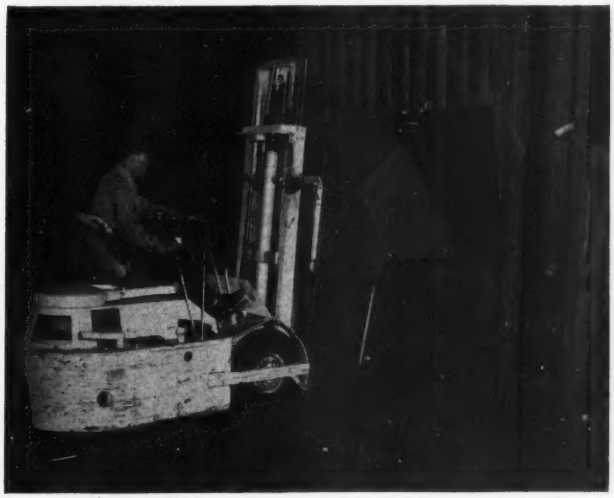
For flat stock, angles, channels and rounds in our steel warehouse a standard 4000 lb. lift has been developed in recent months by use of specially designed angle iron slings. Two tons, incidentally, is the capacity of the pendant controlled traveling bridge cranes serving raw steel storage.

This "sling" is actually a rigid, load-supporting carrier which is hooked to the frame that is suspended from the crane. Two parallel 2 x 2 x 5/16 angles form the base on which the load rests. An 11½" high upright is welded between the angles at each end, as shown, with an eye for engagement at the top.

The slings are of course always used in pairs, one at each end of the lift. In receiving, they are positioned in the car, where the stock is placed in them. The lifting

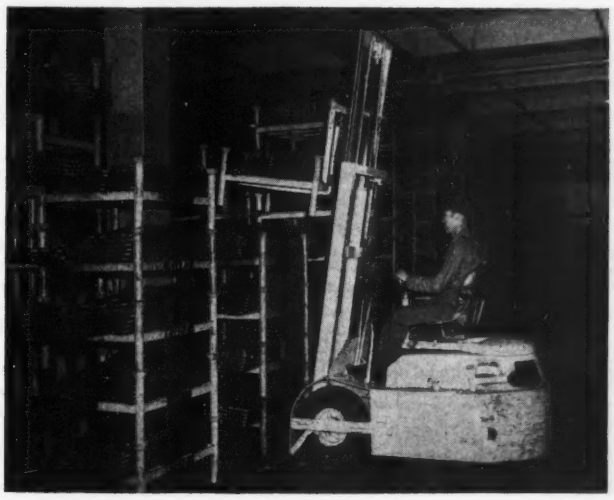


SAME BOXES (in machining area) have mobility on dollies. Small view shows details of dolly.



ALL HOT PARTS are handled in dump-type scoop, above.

STACKING RACKS. Note the retaining members, below.



frame suspended from the crane is hooked to the completed loads which are then deposited on the stacks paralleling the spur within the building. The individual lifts are stacked directly on top of one another to a height of 15 layers, or nine feet. The 33¼" width of the angle iron carriers assures a stable load. Because the "separators" between the layers are 2" angle irons, space-wasting voids are eliminated and a maximum of vertical space is used for storage. Solid stacks of uniform stocks are built so that no unnecessary detiering has to be done in order to reach a particular shape or gauge.

When the steel is needed for production, the lifts are removed from the stacks and set on 1-2-1 heavy duty floor trucks for transfer to the adjoining punch and shear departments. The bed of this truck is in effect a jig, which has positioning members on two sides. These members are of ⅜" plate which fit into the openings between the two lengths of angle iron of each sling. The floor trucks terminate in the shop and when empty are returned to steel storage. These units also have hitches for tractor-train operation.

Three Basic Carriers for Storage, Processing

After shearing, sawing or punching the parts are handled in three main ways, as follows.

Small parts which do not require heating are put in standard tote boxes. These have oak bottoms and gum wood sides bolted into a four-post 32" x 32" metal frame, as shown, with a 7½" underclearance. The box height is 21". The four metal corners are formed to accommodate a ledge which is welded 3½" from the top of the box. These ledges support the box on top when the units are stacked (up to five high).

This construction eliminates the possibility of the stock interfering with the stacking. The fact that the stacking surface is 3½" below the top of the box gives a "telescoping" effect which saves that much height in each layer of the stacks. This construction also gives positive interlocking. Safety is a primary consideration in the adoption or developing of any work carrier.

This size box is designed for the one-ton load capacity previously mentioned. This load plus the weight of the fork lift truck is within the limits of the elevator and upper floor load capacities. Moreover, a uniform box for hundreds of different types of parts being constantly produced contributes to neat and orderly handling procedures—a fact which in turn is reflected in a clean shop. We take pride in the fact that visitors to our plant usually remark on the orderly, unobstructed aisleways and work areas. There are no empty steel drums, buckets or other catch-as-catch-can containers which usually give shops an unkempt appearance, besides constituting a safety hazard. Finally, the stacking to a height of nine feet multiplies our limited available area for simple parts storage. This is of utmost importance in our operation in view of a greatly increased volume since the close of the war.

AUTOS THROUGH SECOND-STORY WINDOWS—At this Atlantic City hotel, an automobile is literally being driven from the street into a second-floor window. The feat is accomplished with the aid of a new "Wall Climber" elevator. The unit is primarily designed for moving automobiles in and out of the hotel during motor shows. The same installation, however, may be adapted for handling many other types of exhibit material intended for display on an upper-floor exhibition hall. When not in use, the projecting runways and bracing of the elevating unit may be folded against the side of the building. The unit consists of two guide channel uprights securely fastened to the outside building wall. Lifting power is supplied by an electric motor-driven chain hoist mounted atop the guide rail structure. Push button controls are located both at the upper floor opening and at ground level. Lifting capacity is rated at approximately 6000 lb.—Photo courtesy, Globe Hoist Co.

Boxes Also Have Mobility

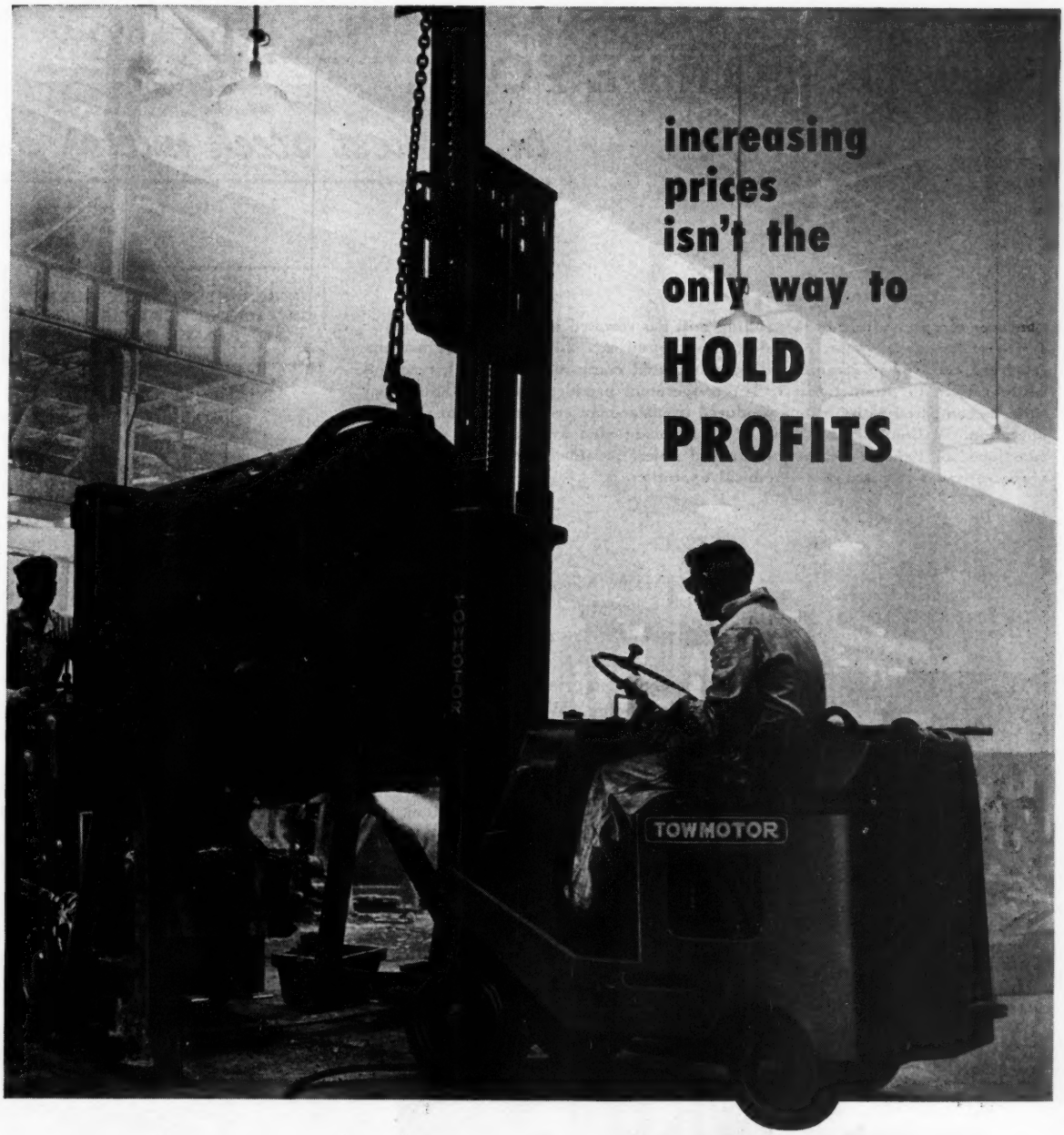
The tote boxes also serve for intermediate storage of rough parts in process. Mobility is provided by spotting these containers on the type of four-wheel, rubber-tired dolly shown in one of the photos. The two eight-inch wheels on one side are supplemented with two swivel casters for easy steering. The rubber rims have a two-inch tread.

A typical application is in the machining operation in the foundry. From the mills the castings are dumped into the standard tote boxes and the loads are then spotted by fork truck in an accumulating room. As the castings are required in the machining department, the full boxes are placed by fork truck on the four-wheel dollies, and the loads are then wheeled to the machines.

Dump Type Container for Hot Parts

The moves are short between the closely spaced machine tools, and hence the dollies are well adapted to this operation. The men can position and wheel the units as needed in relation to the work. The machine operators are not dependent for service on the fork truck, which is left free to go about its usual tasks. Economical use of equipment is thus another benefit. The completed loads are transported by fork truck to storage or assembly, leaving the dollies in the castings finishing room.

(Turn to page 50)



Today, the *best* way to hold profits is to reduce costs. With Towmotor Mass Handling, production costs can be cut 20% to 30%. Towmotor Fork Lift Trucks and Accessories, ideal for both large and small plants, maintain a steady flow of production, speed finished products to waiting freight cars or trucks, operate full capacity 24 hours a day. Get Towmotor, the Fork Lift Truck preferred by professional handlers everywhere. Ask for your copy of Handling Materials Illustrated. It tells the story! Towmotor Corporation, Div. 8, 1226 E. 152nd St., Cleveland 10, Ohio. Representatives in all Principal Cities in U. S. and Canada.

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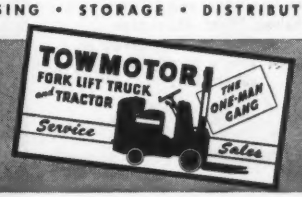
THE ONE-MAN-GANG®

FORK LIFT TRUCKS and TRACTORS

RECEIVING • PROCESSING • STORAGE • DISTRIBUTION

TOWMOTOR NATION-WIDE SERVICE facilities are available in your local area—an important part of Towmotor Mass Handling operations.



SCRAP CONVEYOR...

in a sheet steel mill

HINGED STEEL BELT CONVEYOR, BRIDGE CRANES, GRAVITY ROLLER CONVEYOR

Conveyor scrap handling in this rolling mill has resulted in these improvements: 1. Direct flow from shear, via baler, to outbound car. 2. Relocation of machinery freed crane from scrap handling, eliminated crane idle time, with resultant better service to production. 3. Three operators produce up to 170 tons per shift, as compared with 35 tons produced by three-man crew in manual shearing operation. 4. Conveyor handling of scrap made men available for productive functions. 5. Balance between shear and baler, provided through proper conveyor capacity, resulted in economical operation.

By E. F. BORON
Chief Engineer
The Niles Rolling Mill Co., Niles, Ohio

Crane placing lift of sheet steel on charging conveyor of continuous shear.

THE Niles Rolling Mill Co. specializes in sheet steel for use by a variety of industries, including those in the electrical, home appliance, fabrication and construction fields. With three three-high breakdown mills and four two-high finishing mills, our plant is in the "small" category, producing about 12,000 tons of sheet steel per month.

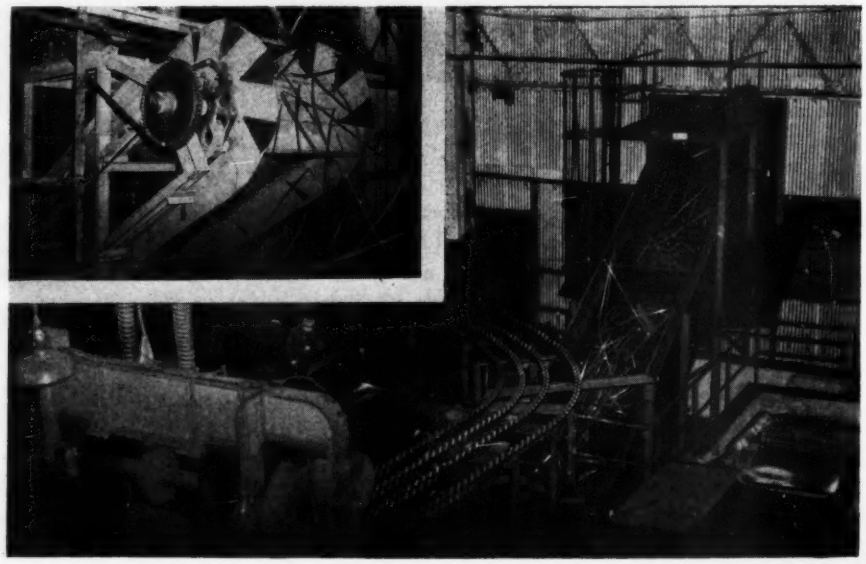
This relatively high rate of production is explained in part by our company's policy of minimizing jobs requiring physical exertion. This program has for years been carried on by our engineering department through the study and application of improved flow and handling principles. Mechanical piling tables (off the bar shear) and mechanical sheet pilers, for example, have done away with the heavy muscular work with which such jobs have long been associated in our industry.

Old and New Methods

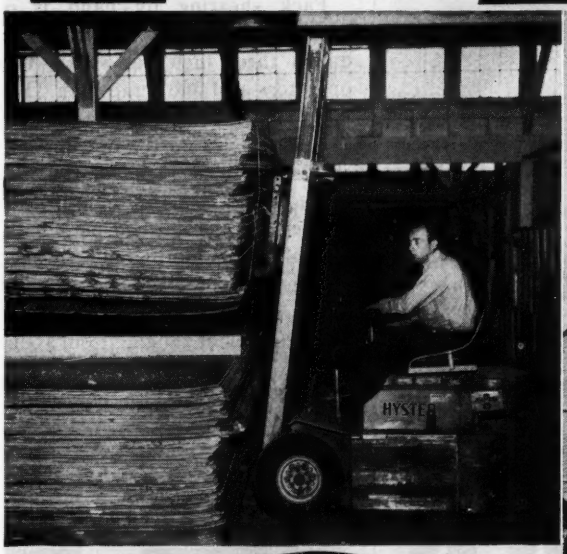
A more recent example is the mechanization of our scrap handling in connection with our pack shearing operation by means of a hinged type steel belt conveyor. Now three men feeding the packs to our continuous shear press produce on an average of 165 tons per turn, as compared with the 35 tons produced by a like crew with

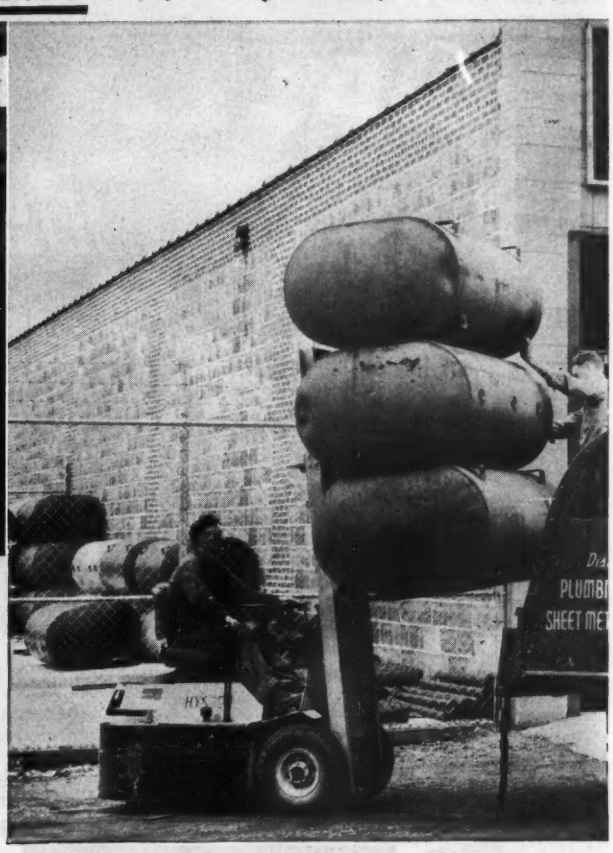
Discharge end of hinged steel belt conveyor. ▶

Inclined section of hinged-type steel belt which carries scrap from shear and delivers to baling. Skate wheel gravity conveyor at left takes sheared sheets to mechanical stacker. ▶



INSIDE YOUR PLANT...OUTSIDE IN YOUR STORAGE YARD





with a Hyster® "20" LIFT TRUCK

THE SAME TRUCK—the rugged, dependable "little" work horse, the HYSTER "20"—operates EQUALLY AS WELL *inside your plant* AS *outside in your* storage yard.

HEAVY DUTY INDUSTRIAL TYPE PNEUMATIC TIRES give the Hyster "20" greatly increased traction, ramp climbing ability, cut down on floor and paving repair and maintenance costs, make higher truck speeds more practical and safer, are easy on the load and driver—EITHER INDOORS or OUTDOORS.

HYSTER "20" HAS GREATER MANEUVERABILITY because of Hyster's patented turning counterweight around the trunnion mounted rear steer wheel; low center of gravity which increases stability; easier steering, rounded rear end.

THE MOVEMENT OF MORE MATERIALS in crowded areas — EITHER INDOORS OR OUTDOORS is done *quickly, efficiently* with the Hyster "20" (2,000-lb. capacity).

CURRENT DELIVERY . . . See your Hyster distributor. Write for literature.

REASONS WHY HYSTER "20" MOVES MORE MATERIALS...

- ✓ Pneumatic tires.
- ✓ Powerful air-cooled gasoline engine.
- ✓ Maximum operator visibility.
- ✓ Load-Grab — For handling many loads without pallets.
- ✓ Special Load-Grab arms available for handling bales, boxes, bundles, bags, barrels, oil drums—without pallets.

Hyster's 7 models range from 2,000-lb. to 30,000-lb. capacity. All are equipped with pneumatic tires.

HYSTER COMPANY

THREE FACTORIES

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1831 NORTH ADAMS STREET.....PEORIA 1, ILLINOIS
1031 MEYERS STREET.....DANVILLE, ILLINOIS

HYSTER

CM METEOR

● Heavy duty electric hoist for stationary, plain, geared or motor driven trolley suspension. Single and two speed models. Capacities: ½ to 5 tons.

Here's Plant Improvement that

Pays off in 3 Ways

HOIST POWER

LOWERS HANDLING COSTS Picks up raw materials, or finished parts for assembly and moves them along for pennies in power and seconds in time.

ACCELERATES PRODUCTION Takes the slowing up "lags" out of assembly line movement. One man precision "spotting". Speeds up handling in shipping.

IMPROVES PLANT MORALE Saves the backs and muscles of men so that they may produce with "morning" efficiency in late afternoon. Aids in accident control.

Frankly, we don't know how many factories have cut costs by putting CM Electric Hoists on production jobs, but we ***do know*** they keep coming back for more and more Meteors and Comets. You couldn't ask for more convincing evidence of a product's usefulness to industry than a constantly growing demand.

CM Meteor and Comet advantages are fully described in the complete CM Catalog. Write us for a copy and the name of your local distributor.

CM COMET High speed, sturdy, portable electric hoist. One hand control. Plug in on single or 3 phase power line. Capacities: ⅛ to 1 ton.

CHISHOLM-MOORE

HOIST CORPORATION

(Affiliated with Columbus McKinnon Chain Corporation)

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manual shearing in the same length of time.

Pack shearing by hand is of necessity a slow operation. It requires three men per shear—two operators and one scrap man. The two operators lift or slide the packs from the piles (after opening the sheets) to feed them to the machine, where all positioning is done manually. The finished pack is removed by hand onto a pile. A pack may consist of from two to eight sheets, depending on the gauge, with the weight ranging from about

Bale of scrap sliding down chute into gondola.

100 to 250 pounds per pack. While the material is slid wherever possible, a considerable amount of lifting remains to be done. And that is hard work. Manual shearing is still standard procedure in some rolling mills.

The scrap man meanwhile picks up the lengths of scrap off the floor and places them in a rack. The full racks of scrap used to be transferred by crane through the full length of an 830-foot-long bay for loading into gondola cars. The scrap was dumped by the crane, which meant that it was loaded loose. And loose scrap usually brings two or three dollars less per ton than baled scrap. The scrap being handled by our new conveyor is delivered to a baler, which is one of the several operating improvements that resulted.

Layout Revision for Better Flow

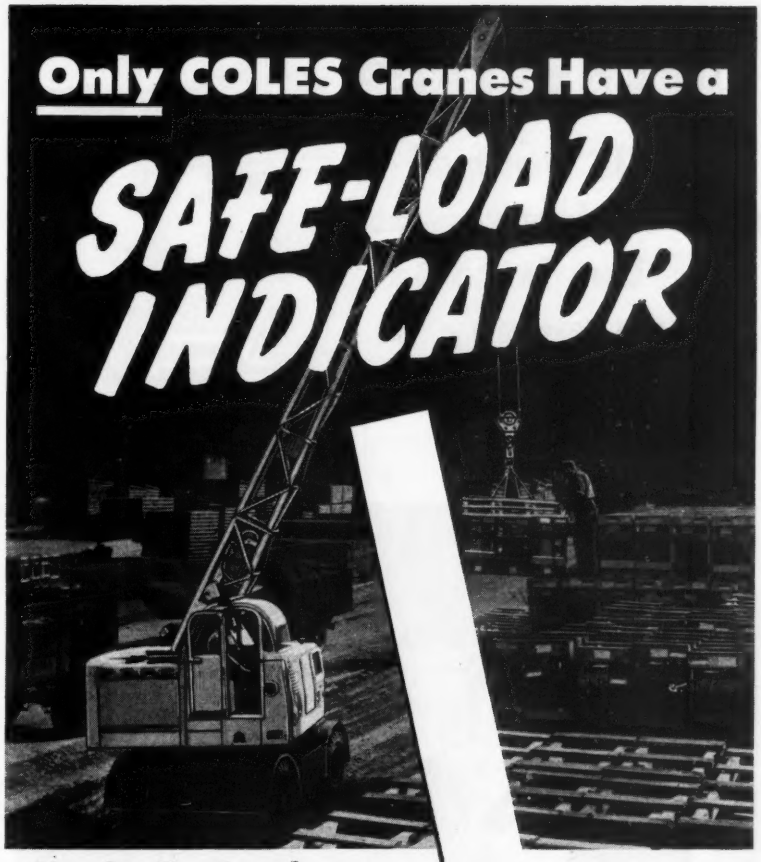
The installation of new equipment usually entails a revision of

existing layouts. We relocated our continuous shear from the western part of the long bay to the east end. This change enabled us to make use of a spur track at the east end of the building for scrap loading and shipping. This revision, in turn, would make it unnecessary for the cranes to transport the scrap through the bay, which used to cause crane idle time. Three cranes operate on this long runway, and during scrap hauling operations interference resulted in crane service to the production departments.

Conveyor Handling of Packs

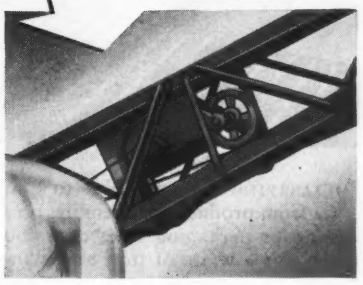
Our modernized handling operation also includes a gravity roller conveyor at the charging end of the continuous shear press. This conveyor facilitates the feeding of the sheet steel and consists of four lanes. The drop is about one foot from the start to the lower end. The over-all width of the carrying surface is nine feet, with 13 inches between lanes. The three-inch rollers are 12 inches long and are mounted on 6-inch centers.

A bridge crane deposits the lifts of sheet steel on the roller bed, and the drop of one foot permits ready manipulation of the loads to the charging end, 40 feet away. If the material is to be held in temporary storage, as during lunch, an air-operated brake at the start of the line holds the lifts. Others can be blocked with wood along the 40-foot length. The method of feeding the packs by the operators has been engineered for the easiest possible handling. The four-lane conveyor curves 90 degrees to the short gravity charging conveyor, with a hinged gravity roller section at the junction point. Two operators slide the packs over the hinged conveyor section, which is maintained on a level with the top of the pile. As the latter drops, the hinged section is lowered, thus avoiding the necessity for any lifting on the part of the operators. The third operator gives the packs a slight push forward on the charg-



***Plus*-One Man Control**
Patented Reversible Steering
Low Maintenance Cost!

Coles *"Safe-load"* indicator provides all around protection to operator as well as to expensive equipment. The unobstructed view from operators cab at front of superstructure furnishes complete visibility, "ONE-MAN" trigger-quick control to all four motions: Hoisting, Swinging, Derricking, Traveling. The four simple controls can be worked simultaneously. Coles Cranes' rugged *"battleship"* construction gives long-life service at lowest maintenance cost—combined with fool-proof operation. Ease of maneuverability, including the Cole patented reversible steering are just a few of the many advantages of the Cole Mobile Crane. "Know-How" gained from 70 years Crane manufacturing experience. Plus ... world wide distribution has made COLES Cranes a leader. Available in several models in capacities 1½ ton to 15 ton. Write us for prices, literature or the name of your nearest dealer. COLES CRANES, Inc., 4307 S. Paulina Street, Chicago 9, Illinois.



The Safe-Load Indicator

COLES *"Safe-load"* indicator prevents operator from lifting any loads in excess of rated load at any given point of radius. A warning light directs attention immediately to an overload. Current is cut-off automatically if operation is continued.

COLES CRANES
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"CARRYING" commodities to and from production, assembly, processing or packaging lines costs too much. It's a waste of time and manpower.

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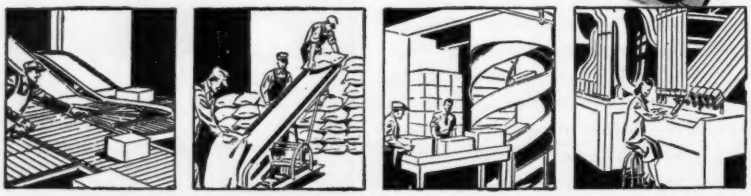


ROLLER - BELT - SLAT - CHAIN CONVEYORS • PORTABLE CONVEYORS AND PILERS • SPIRAL CHUTES • PNEUMATIC TUBE SYSTEMS

ing conveyor, which is sufficient to feed them into the shear.

As the pack travels through the machine, the side scrap is sheared first, then the end scrap. The long side scrap drops through alligator knives at each side of the machine which cut the nine-foot-long material into three-foot lengths. Deflector plates at the sides guide the cut scrap onto the apron conveyor at the bottom of the shear.

Balanced Conveyor Handling

The apron conveyor, 80′ long and 54″ wide with 15″ high side wings, is capable of holding 30,000 lb. of scrap. The belt is composed of uniform steel hinges, which are made of 3/16″ steel, 6″ wide, 6″ pitch. Since the belt will flex up or down without opening, it is well adapted for transporting unwieldly scrap. It runs below floor level for about 60 feet, then inclines at a 30-degree angle for the balance of its length, terminating above a storage bin. It has a five HP drive, and 15″ flights on 15-foot centers prevent the scrap from sliding when traveling up the incline. The scrap drops over the drive end into the bin, whose hopper bottom causes the material to slide toward a baler directly adjacent to it on one side. According to our original plan, the conveyor was to advance 15 feet per hour, with a loading capacity of 60 pounds per square foot.

The compressed cube of scrap is lifted from the baler box by hydraulic ram to floor level, where an air-operated ram advances it into a skip. The latter is electronically controlled, and is raised automatically when the bale has been deposited in it. The skip travels up a 45-degree incline to a chute extending through a wall opening above the previously mentioned spur track. At the top of the runway, the skip hits a time delay switch. The skip is held for 1½ minutes, allowing the hinged drop bottom to discharge the bale.

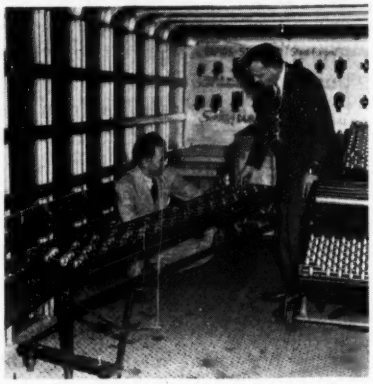
The 30,000 lb. capacity of the conveyor was designed to take care

of the scrap produced in three turns (shifts)—an amount which the baler would bale in two turns. Thus the conveyor capacity was designed to balance scrap production with baler production for utmost economy of operation. With the baler baling the scrap in two shifts which is produced by the continuous shear in three shifts, the operating saving would be one shift per day on the baler. So far, however, delays in equipment deliveries have prevented realization of this plan, but the details given illustrate how a planned operation can be productive of important savings.

The listing of the over-all operating improvements, appearing at the beginning of this article, gives an accurate idea of the benefits that resulted from our continuous scrap handling program.

ON-THE-JOB DEMONSTRATOR

A PANEL truck for on-the-job demonstration of material handling equipment is being used by The Rapids-Handling Equipment Co. of Grand Rapids, Michigan, to help com-



pany salesmen dramatize their recommendations and methods. Purchased a short time ago, the truck already has done a satisfactory volume of business. The company plans to keep it rotating among the various sales territories in the state. On each trip, one salesman and a company driver leave the home office on a planned itinerary which often takes three days. Each trip through a segment of the sales territory is announced by direct mail advertising to old customers and prospects, and each businessman is urged to write by return mail for a demonstration of equipment suited to his needs. An installation is set up right on the job, and the customer is afforded an opportunity to plan the most effective use of equipment before making a decision to buy.

MAINTENANCE _ _

the job

Much is said about preventive maintenance—here's a company that does something about it: a positive method for making maintenance preventive through a simple record system which gives systematic control of equipment failures.

Part II

AFTER the operating principles or policies have been determined which shall govern the maintenance practices of material handling equipment, the next step is to devise procedures that will assure the job is going to be done as planned. This discussion will outline the practices that have been adopted by the material handling equipment maintenance department of the Timken organization. *(See the author's article "Maintenance—Whose Job?" in the March issue.—Ed.)*

By FRANK C. WIER

Supervisor, Material Handling, Steel and Tube Division

The Timken Roller Bearing Co. Canton, Ohio

DAILY WORK REPORT — #2 Locomotive Crane

PERIOD 2nd Turn, 11-15-40

From	To	
7:30	8 am	Service Crane
8:00	8:25	Switch Cars from 705-E
8:25	9:50	Unload 2 Cars of "A" Scrap
9:50	10:15	Stock Shears
10:15	10:45	Adjust Swing Clutch
10:45	11:15	Unload Truck at 713 Track
11:15	11:30	Switch Cars
11:30	11:45	Lunch
11:45	1:15	Unload 2 Cars of Low Phos
1:15	1:50	Generator Motor Missing
1:50	2:15	Stock Shears
2:15	2:45	Remove Stock from End of Shears
2:45	3:25	Unload 1 Car of "H" Scrap
3:25	3:30	Return Crane to Garage

STEP 1. Daily Work Report shows downtime.

A plant adopting for the first time a separate material handling equipment maintenance department should not expect to have a full-fledged program from the first day. It is easy to draw up a set of procedures, but if they are rule-of-thumb it will be difficult to live up to them. It is better to let some of the rules be determined from the practices that are found most effective.

Moreover, each company's approach is bound to vary. The set-up for the units of a fleet of uniform equipment operating in a confined area (perhaps in one building) will differ from the maintenance provisions made in a plant where several distinct categories of machines are employed, each with its own peculiar problems. Variations in maintenance practices will also be introduced by the number of shifts worked daily and the extent of the areas covered by the equipment.

But regardless of any such differences, the object of any maintenance program remains the same. This is to (a) catch minor repairs before they develop into major breakdowns, and (b) have a mini-

Ten Points for Effective Maintenance

1. **Maintain a record for the accumulation of data showing equipment failures.**
2. **Compile these data to detect (a) type and (b) frequency of failures, to be used for preventive maintenance purposes.**
3. **Lubricate and change oil on schedule.**
4. **Make regular checks on vital operating parts (when oil is changed).**
5. **Round-the-clock presence of a mechanic to give on-the-spot service for repairs of small defects before they become major failures.**
6. **Written instructions by foreman and written report by mechanics leave no room for misunderstanding on night turns.**
7. **Availability of replacement units prevents maintenance bottle-necks and tie-up of equipment.**
8. **Adopt record forms that have proved themselves suitable for the operation and that aid the cause of preventive maintenance.**
9. **Direct personal contact between operating personnel and mechanics as a positive means of making thorough diagnoses.**
10. **Maintain adequate repair equipment and maintenance working area.**

mum number of equipment units out of circulation. This is another way of saying that the real goal of any maintenance program is to keep the material flow lines moving.

The present description must be understood against the background of two characteristics peculiar to our method of operation and plant locations. 1. Our equipment is varied, ranging from powered wheelbarrows to locomotive cranes, as illustrated in the March article. 2. Our maintenance organization is set up to service the equipment in two plants which are about three miles apart.

A Method For Prevention

Prevention means to forestall major breakdowns which keep equipment tied up and thus interfere with production. Here is how we handle this most important phase of the program. The heart of our preventive maintenance is our equipment availability record. One of the rules of the Timken material handling organization requires each operator to account for his day's work on paper. Our maintenance program takes advantage of this practice. On his Daily Work Report the operator notes the jobs which he performs and the hours he works at each. If he encounters a delay due to mechanical failure of his equipment, that fact will also show up on his report. If, for example, he transported bales of tubing from eight to 10:30 a.m. on a given day, a mechanical delay may

CLERICAL WORK SHEET — Locomotive Crane #2

(November, 1948)

Delay or Breakdown	Time Consumed — Hours								Totals
Generator Motor	1/4	1/2	1-1/2	1/4	3/4	1	1-1/2		5-3/4 Hrs.
Diesel Motor	1-1/2	1-3/4							3-1/4
Magnet									0
Magnet Cable	3/4	1/2	1	3/4	3/4	3/4	1/2	1	6
Travel Clutch	1/4	1/2							3/4
Swing Clutch	1/4	1/4	1/4						3/4
Hoist Clutch	1/2								1/2
Air Compressor	1	1/2							1-1/2
Light Plant	3/4								3/4
Car Body	2								2
Radio	1/2								1/2
Brakes	1/2	2							2-1/2
Trucks									0

STEP 2. Clerical Sheet identifies the data.

MONTHLY AVAILABILITY RECORD — #1 Locomotive Crane. 1948

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct
Scheduled Hours	504	460	532	544	512	544	408	504	509	536
Availability in %	82.4	83.4	78.9	79.3	79.3	85.3	82.3	81.7	81.8	84.2
Grease & Fuel	7.8	7.1	6.5	6.8	6.6	6.9	6.9	7.1	7.2	6.7
Lunch	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
Generator Motor	2.3	2.5	2.2	.7	2.9	2.3	1.2	.4	.9	.7
Diesel Motor	.4	.2	1.9	.7		.2	.1		.9	1.3
Light Plant			.3	.4		.1	.1	.7		.1
Air Compressor		.1	.4	.2	.1					
Clutches	.9	.6	.3	3.6	2.6	.9	1.5	3.8	.6	1.1
Brakes		.1	.6	.2	.1		.3	.1	.3	.1
Radio								.9	.3	.1
Boom Assembly					1.1					.1
Car Body	.1	.2	.2				.7	.7		.2
Magnet Cable	.4	1.4	2.8	1.1	1.3	.9	2.8	.4	2.1	1.7
Other Cables	.3	.1	.8	.3	.1	.1	.2	.1	.7	

STEP 3. Availability Record. Master record.

The Caster That Had To Be Babied

"Oh my aching back," it moaned under heavy loads. "No, no," it winced under the strain of sudden shocks. Swivel? Workmen cussed at the turns. This "baby" sure snarled up handling.

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show up like this: "Bad clutch. Pulled into garage for repair. 10:30 to 11:30." Not only is his time accounted for, but supervision knows what is happening to production from the maintenance standpoint.

These data are then recorded in the Clerical Work Sheet, also shown in the exhibits, which serves to accumulate and identify downtime information.

Here is what is done with this information appearing on the Clerical Work Sheets. A member from the material handling department goes over them and compiles the delays for each machine on the separate sheet of a master record—the Equipment Availability Record. Mechanical downtime is calculated in relation to scheduled work hours, which gives us our percentage of availability. Two bar graphs given in the March article showed the percentage of availability for two types of equipment.

The value of such a precise control practically speaks for itself. The summary on the availability record gives the departmental supervision a complete picture of the maintenance situation and its effectiveness. If a certain type of failure shows up repeatedly on one type of equipment, then supervision knows what the problem is and how to remedy it.

So It Won't Happen Again

This method is effective and economical for us, partly because it makes use of the operators' daily work reports which were already in existence. Another company may have to approach this problem differently. This method also proved satisfactory for us because it did not entail elaborate paper work procedures.

Here is an example or two showing how this record system enables us to spot trouble and institute corrective measures. It was found that a principal cause of downtime on locomotive cranes resulted from gasoline-driven DC generators which furnish power for lifting magnets. Following a check, cor-

rective measures were applied on the carburetion and governor control, also on certain parts of the electrical equipment. We now have very much less trouble from this source.

When we first introduced straddle trucks in our Canton steel mill, the availability record revealed that half the downtime was caused by flat tires. The cause of this difficulty, it was found, was traceable to certain road obstructions which would not be normally noticed, and from chips and scrap lying about the roadways. The obstructions were removed, and the chips cleaned up more frequently. Again, this type of downtime has come to be a negligible factor.

Lubrication, Oil Changes, Checkups

This record system is of course supplemented by regular checkups and daily maintenance routines. Adequate, periodic lubrication is one of the most important factors of long equipment life. A definite schedule is in effect. For example, locomotive cranes, crawler cranes and crawler type tractors are lubricated at the start of each turn before any other work is begun. This rule is not violated for any reason whatever. Straddle trucks are lubricated when their operators are ordered to do so (also a daily job) by the supervisor through two-way radio control.

This staggered arrangement prevents the concentration of all the equipment in a given area at one time. It is the vehicle operator's duty to perform the physical act of lubrication; it is the mechanic's duty to check that the job is properly done.

The oil is likewise changed on schedule. On certain equipment working 24 hours a day this is done once every week. Other equipment receives fresh oil every 100 engine hours. (These machines have engine-hour meters.)

Regular inspections are also made by the mechanics at the time they make the oil changes. On a straddle truck, for example, the fol-

(Turn to page 48)

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. . . are a "CINCH" for ROSS Lift Trucks

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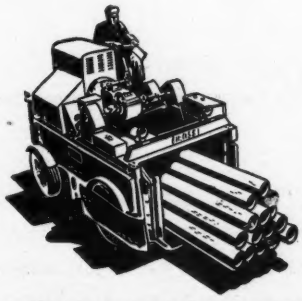

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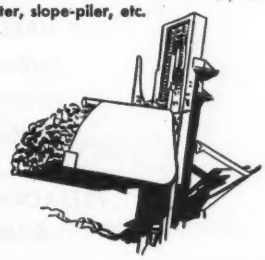

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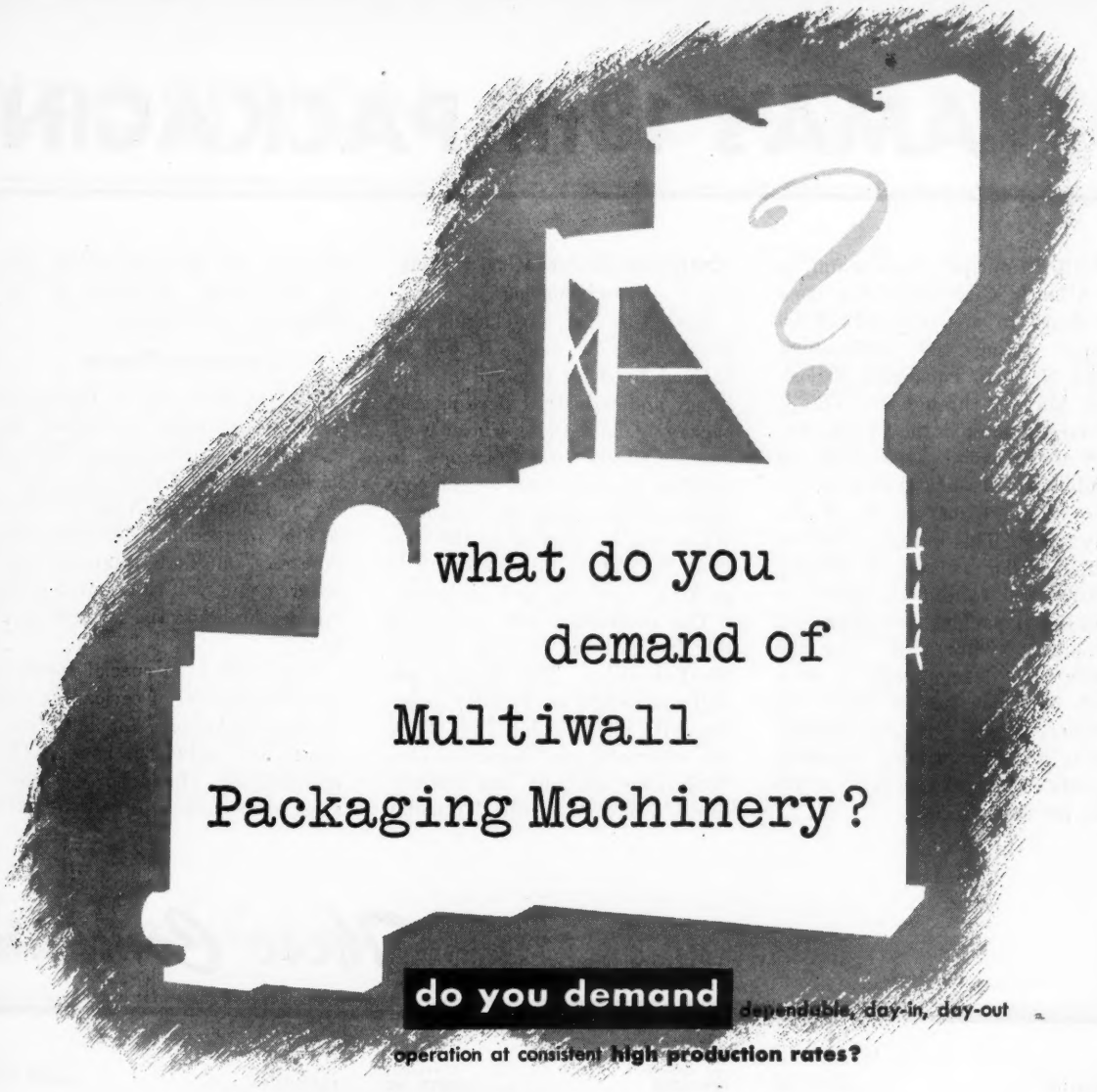

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AMA's 18th PACKAGING EX

THE Municipal Auditorium in Atlantic City will throw open its doors to an expected 15,000 people during the forthcoming AMA National Packaging Exposition, May 10 through 13. This is the largest show in the 18-year history of the event. More than 200 exhibitors will show their wares in more than 110,000 sq. ft. of display space. This industry with an annual dollar volume of $6,000,000,000 will exhibit the latest in packaging, packing, handling and shipping. Visitors will view the staple basic developments in these fields and new factors which will influence production and marketing as well as packaging. Ranking experts in this field will be available for consultation.

Conference on Packaging, Packing and Shipping

Again this year, a packaging conference will be held. It will be beamed to those engaged in consumer and industrial packing and packaging, and those whose work directly affects these functions. In addition to discussions on the construction and design of containers, others will be devoted to the handling factors to be considered in packing, receiving and shipping.

The conference will hold forth the first two and one-half days of the Exposition. The opening session will be held on Tuesday morning, with one scheduled for Tuesday afternoon, two concurrent ones Wednesday morning, one Wednesday afternoon and one Thursday morning. All meetings will be held in the Grand Ballroom of the Municipal Auditorium.

Packaging Theatre

For the first time, a Packaging Theatre has been established for the showing of educational films on various aspects of packaging, packing and shipping. Approximately 20 films on technical developments, processes, methods, material procedures, etc., will run continuously during the hours the Exposition is open.

There will be a special continuous presentation of carloading and bracing techniques for both consumer and industrial goods. The presentation, which will use operating scale models of railroad roll-

These Companies A

EXHIBITOR	BOOTH NO.
ABC Packaging Machine Corp.	607
Acme Steel Co.	618
Allis-Chalmers Manufacturing Co.	719
Aluminum Co. of America	313
American Can Company	419
American Partition Co.	621-A
American Perforator Co.	126-B
American Specialty Co.	116-A
American Type Founders	707
Amsco Packaging Machinery, Inc.	414
Anderson Bros. Mfg. Co.	610-A
Arabol Mfg. Co.	202
Arenco Machine Co.	510-B
Arkell & Smiths	601-A
Associated Cooperage Industries of America	706
Association of American Railroads	101
Atlas Plywood Co.	723
Automatic Web Guide Co.	206
Avery Adhesive Label Corp.	115
Bagprint Machinery Corp.	420, 421
Bakelite Corp.	412
Barrett-Cravens Co.	606
Bemis Bro. Bag Co.	702
Bensing Bros. and Deeney	322
Benj. C. Betner Co.	506
Better Packages, Inc.	612
Biner-Siegrist	601
Bonnell Publications, Inc.	715
Brown Bag Filling Machine Co.	105-B
F. N. Burt Co., Inc.	520
Burt Machine Co.	621
Celanese Corp. of America	302
Celon Co.	720
Central States Paper & Bag Co., Inc.	617
Ralph Chaffee	116-B
Champlain Co., Inc.	510, 511
Chase Bag Co.	114
Chase Equipment Corp.	726-C
Chaspec Mfg. Co.	113
Chisholm-Ryder Co. of Penna.	223
Cleveland Container Co.	107
Arthur Colton Co.	221-A
Consolidated Lithographing Corp.	418
Consolidated Packaging Machinery Corp.	214
Container Corp. of America	403
Container Equipment Corp.	102
Crown Cork & Seal Co. Inc.	409-A
Crown Cork Specialty Corp.	409-A
Crystal Tube Corp.	521-A
Derby Sealers, Inc.	705
Diagraph-Bradley, Inc.	724
Diaphane Corp.	221
Dobeckmun Co.	204
Machines Div., Doughboy Industries, Inc.	121
Dow Chemical Co.	315
Dumatic Industries	112
E. I. du Pont de Nemours & Co.	305, 306, 307
Eastman Kodak Co.	404
Economic Machinery Co.	415
Einson-Freeman Co., Inc.	401
Elgin Mfg. Co.	523
Envelope Mfrs. Assn. of America	117
Exact Weight Scale Co.	611
J. L. Ferguson Co.	602
Fibre Drum Mfrs. Assn.	127-B
FLOW Magazine	105-A
Food Industries	503
Food Machinery & Chemical Corp.	613
Wm. A. Force & Co.	721
Leonard Freedman & Sons	718
Gaylord Container Corp.	502
General Box Co.	603
General Mills, Inc., Mechanical Div.	501
Glassine & Greaseproof Mfrs. Assn.	120
Fred Goat Co., Inc.	510, 511
B. F. Goodrich Chemical Co.	310-A, 310-B
Goodyear Tire & Rubber Co., Inc.	406, 407
Adolph Gottscho, Inc.	222
Graymills Corp.	726-B
Gummed Industries Assn.	215-A
Hankins Container Co.	103
Hayssen Mfg. Co.	220
Hazel-Atlas Glass Co.	508
Heat Seal-It Co.	217
H. H. Heinrich, Inc.	615
High Production Machine Co., Inc.	211
Hinde & Dauch Paper Co.	405
Floyd A. Holes Co.	210
Hope Machine Co.	714
Horix Mfg. Co.	620
I. D. Co.	717
Industrial Tape Corp.	604
Inland Steel Container Co.	614
International Printing Ink Div. of Interchemical Corp.	413
International Staple & Machine Co.	323
Island Equipment Corp.	420-B
Ivers-Lee Co.	409
R. A. Jones & Co., Inc.	519
Kalamazoo Vegetable Parchment Co.	203
Karl Kiefer Machine Co.	521-B
Kimberly-Clark Corp.	320
Kimble Glass, Div. of Owens-Illinois Glass Co.	522

ing stock, was arranged with the cooperation of the Freight Loading and Container Section of the Association of American Railroads.

Hours for the show will be as follows: Tuesday, noon to 6 P.M., Wednesday, noon to 10 P.M., Thursday, noon to 6 P.M., and Friday, 10 A.M. to 3 P.M.

According to Lawrence A. Appley, AMA president, arrangements for the Exposition are being made by the Exposition Exhibitors Advisory Committee of which J. M. Cowan, The Dobeckmun Co., is chairman. Other members of the committee include: A. B. Clunan, manager, Direct Packaging Sales, Pliofilm Department, The Goodyear Tire and Rubber Company, Inc., Akron, O.; N. A. Fowler, director, Sales and Research, General Box Co., Chicago; Robert D. Handley, advertising manager, Sylvania Div., American Viscose Corp., New York; D. S. Hopping, director, Sales Development, Celanese Plastics Corp., New York; Samuel Y. Hyde, Sales Promotion Div., American Can Co., New York; M. P. Junkin, sales manager, National Metal Edge Box Co., Philadelphia; C. F. Manning, vice president, Reynolds Metals Co., Richmond, Va.; E. J. Marsh, secretary-treasurer, Marsh Stencil Machine Co., Belleville, Ill.

Paul Meelfeld, manager, Advertising and Sales Promotion, The Hinde and Dauch Paper Co., Sandusky, O.; Tom Miller, vice president in charge of sales, Package Machinery Co., East Longmeadow, Mass.; K. M. Peterson, advertising manager, Pneumatic Scale Corp., Ltd., North Quincy, Mass.; L. L. Pilliod, sales manager, The Pilliod Cabinet Co., Swanton, O.; Paul Thompson, advertising and sales promotion manager, Sherman Paper Corp., Newton Upper Falls, Mass.

James Turnbull, general sales manager, Plastics Div., Monsanto Chemical Co., Springfield, Mass.; Mills W. Waggoner, general manager, Better Packages, Inc., Shelton, Conn.; Richard Wellbrock, vice president in charge of sales, New Jersey Machine Corp., Hoboken, N. J.; Ben M. Williams, manager, Sales Promotion, Gaylord Container Corp., St. Louis.

ies Are Exhibiting

EXHIBITOR	BOOTH NO.
Lakso Co.	726-A
Specialty Package Div., Leeds Sales Co., Inc.	218
Fred'k H. Levey Co., Inc.	712
L. Link & Co., Inc.	312
Loroco Industries, Inc.	411
Lynch Corp.	201
McKay-Davis Chemical Corp.	321-B
MRM Co., Inc.	410
Manhattan Paste & Glue Co., Inc.	209
M. Mann & Co.	126-A
Marathon Corp.	517, 518
Markem Machine Co.	118
Marsh Stencil Machine Co.	104
Merchants Box Co.	128
Mid-States Gummed Paper Co.	708
Miller Wrapping & Sealing Machine Co.	414
Milprint, Inc.	317, 318
Minnesota Mining & Mfg. Co.	616
Modern Packaging	505
Monsanto Chemical Co.	301
Kenneth J. Moore & Co.	713
Mosstype Corp.	126
Multistamp Co., Inc.	212
Nashua Gummed & Coated Paper Co.	213
National Adhesives Div. of National Starch Prod., Inc.	304
National Metal Edge Box Co.	303
National Wooden Box Assn.	608
New Jersey Machine Corp.	216
Nox-Rust Chemical Corp.	709-B
Oliver Machinery Co.	512
Owens-Illinois Glass Co.	514
Package Machinery Co.	316
Packaging Parade	314
Packaging Systems Magazine	127-A
Pack-Rite Machines, Div. of Techtmann Industries, Inc.	609
Pad-Y-Wax Co.	122
Paisley Products Inc.	125
Paramount Paper Co.	709-A
Peri-Oussani Machine Mfg. Co.	116-C
Peters Machinery Co.	119
Pilliod Cabinet Co.	623
Pneumatic Scale Corp., Ltd.	507
Potdevin Machine Co.	605
R. C. S. Tool Co.	610-B
F. B. Redington Co.	219
Reynolds Metals Co.	416, 417
Riegel Paper Corp.	513
A. H. Ross Co., Inc.	704
Roto Bag Machine Corp.	622
Thomas M. Royal & Co.	309
Scandia Mfg. Co.	311
Schroeder Machines Corp.	420-A
Seal-Spout Corp.	610
Seal-Vac Corp.	116
Sefton Fibre Can Co.	403
Selins Tying Machine Co.	110
Shellmar Products Corp.	308
Sherman Paper Products Corp.	408
Shipping Management, Inc.	109
Shumann Equipment Co.	701
Simplex Wrapping Machine Co.	414
Spectrum Manufacturing Co.	126-C
Standard-Knapp Corp.	504
Standard Printing	619
Stanford Engineering	124
Stein, Hall & Co., Inc.	106
C. E. Stevens Bros., Inc.	310
Stoessel Machine Co.	221-B
Stokes & Smith Co.	613
Sun Chemical Corp.	521
Sutherland Paper Co.	703
Sylvania Division, American Viscose Corp.	516
Taber Instrument Corp.	210-A
Tompkins Label Service	402
Transparent Wrap Machine Corp.	722
Traver Corp.	321-A
Triangle Package Machinery Co.	205
Troth, Bright, Page	725-B
C. E. Twombly	725-A
Union Bag & Paper Corp.	515
Union Special Machine Co.	111
United Board & Carton Corp.	108
United States Automatic Box Machinery Co., Inc.	319
U. S. Bottlers Machinery Co.	215-B
U. S. Engineering Co.	210-B
Victory Container Corp.	710
Visking Corp.	321
Waxed Paper Institute	709
H. G. Weber & Co., Inc.	123
Weber Addressing Machine Co.	726
Weinman Brothers, Inc.	716-A
West Co.	621-B
Wheaton Glass Co.	510-A
Frank W. Winne & Son, Inc.	716-B
Wood Conversion Co.	207
Woodman Co., Inc.	711
Wrap-Ade Machine Co., Inc.	509
Wrap-King Corp.	709-C
Wright Machinery Co.	208

The Harder They Come...

(Protective packaging for drilling tools.)

Why rock bits, hardened to unusual degrees, require careful handling and protective packaging. How Houston's (Tex.) Hughes Tool Co., producer of these drilling tools, solved problems resulting from the size, shape, weight and abrasive action of these units through special packing techniques.

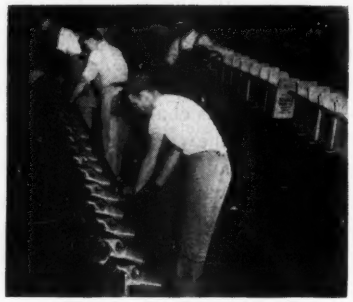
ROCK bits are cutting tools that pulverize the various strata of rock encountered in oil well drilling. A rock bit generally consists of a forged and welded shank threaded at the small end and equipped with three-toothed cones which revolve on ball and roller bearing assemblies at the large end. The cones are the cutters which grind the rock as they revolve.

Bits are manufactured in sizes from 3¾" to 26" in diameter; from 7" to 26½" in length; and in weights from 10 to 1252 lb. It is often thought that because of the tremendous hardness and inherent strength of these drilling tools, they require little or no protective packaging. However, the high cost of the units plus the difficult conditions under which they must be handled and stored in oil fields, make careful packaging a must.

STENCILLING, STAMPING, shellacking and carton loading. Note plywood stiffeners, left.

Packaging Presents Many Problems

Here are some of the problems which were encountered in designing a suitable container for these units. 1. The conical shape of the product with its heavy weight would cause the shipping container to collapse in handling and stacking if the package were not adequately constructed. 2. The container must be able to withstand the abrasive action caused by the sharp teeth of the cutting cones. 3. Corrosion prevention, especially of the bearings and threaded shank under the all-weather conditions found in the field, had to be included. 4. Identification of the unit on each package requires special attention since normal precautions are insufficient at the rig locations. These are the factors that determined the packaging and handling techniques developed.



TRACTOR AND TRAILER deliver rock bits to packing tables where they are laid in orderly rows.

Castered Equipment to Packaging

Rock bits are delivered to the packaging department on 10,000-pound capacity rubber-tired caster-type trailers which are equipped with wooden decks. This type of foundation is necessary to reduce nicking in transit. Eight-inch-high metal sides retain the load on ramps. A three-wheel shop tractor

PACKAGES ARE GLUED, banded and loaded on pallets. Note dolley for steel strapping.

provides motive power for the 3½′ x 7′ trailers. Usually three of them comprise a train.

The packaging room consists of four steel-topped work benches, four ft. wide and 60 ft. long, separated by six-ft. aisles which permit tractor-trailer travel. Four of these

FORK TRUCK removes 3000-lb. pallet load from trailers and deposits in basement storage area.

tables provide sufficient room for the packers. All rock bits up to 9⅞″ in diameter and weighing up to 110 lb. are packed in corrugated paperboard boxes. Larger sizes are shipped in wooden containers. Because most of the bits are included in the smaller category, the balance of this article will deal with them.

The units are removed from the trailer and placed on the perimeter of the work benches by two operators. They follow the trailer as it slowly travels down the aisle and swing the bits onto the table in an orderly row with the threaded shanks facing the aisle. In this position the stampers can affix the serial numbers on each bit by means of metal stencils without handling the individual parts. Following this identification, anti-corrosion paint is applied by another crew. They place the bits on their threaded ends and apply two types of paint to the units; one to the cones and another to the shank. While the bits are drying, another group brings in the proper size corrugated paperboard boxes and places one behind each unit.

The container consists of a single-wall corrugated outer box, a double-wall corrugated inner lining and two plywood inserts, one for the top and bottom. The thickness of the plywood varies from ¼″ to

You take a chance as long as human eyes must read . . . human minds must remember . . . and human hands must write weight figures! Human errors at weighing points *directly affect your costs, profits and customer relations.* Stop these losses now with PRINTED weights—today's better way to weigh!

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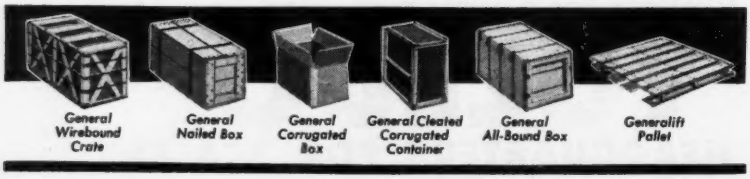


¾" depending upon the weight of the bit. These containers are received knocked-down and are assembled on a stitcher. The engineered design of this container allows it to sustain superimposed loads and shocks on any of its sides without collapsing, even though the conical shape of the bit will not reinforce the container on four of its six sides.

Stenciling, Steel Banding

The next crew stencils descriptive information about the bit on the side of the carton, i.e., part number, size, serial number, etc. The stenciled information is covered with a clear shellac to protect it against the deteriorating effects of the weather.

When dry, the carton is slipped over the upright bit, and upended ready for top closure. The top carton flaps are glued, then banded with steel strapping. The gluer inserts the plywood stiffeners and applies the adhesive. Then, a spring steel fastener applies compression to the top flaps (this U-shaped fastener eliminates the need for upending the package for pressure drying). A ⅜"-wide galvanized steel band is added, tightened and sealed with an automatic one-piece banding machine. A castered dolly allows convenient movement of the banding iron and equipment from station to station. The completely packaged bits are removed from the tables and placed on pallets which are superimposed on four-wheel push trucks for ease in loading.

When loaded, the trucks are pushed into a receiving station where a fork truck removes them and places them on trailers. Tractors tow the loads to the storage area where another fork truck stacks the pallets to sprinkler height.

The Hughes Tool Co. has developed a shipping container and packaging techniques which answer the problems outlined above.

Prepackaging Fresh Vegetables

(in non-rigid containers)

About nine years ago, grocery chains and independent food stores began featuring prepackaged vegetables in family-size containers. Large quantities of leafy vegetables are now handled on wire mesh and rubber belt conveyors for efficient packaging.

PREPACKED vegetables offer several distinct advantages. 1. Attractive displays. 2. Improved sanitation. 3. No waste. 4. Spoilage is reduced in the stores because the vegetables are handled in the package.

Since the packaging season lasts roughly from January through May, methods had to be devised for maximum production in a concentrated period. (Packaging in northern states is done only during the months when vegetables are shipped from southern areas. After that, hot-house and farm-grown vegetables are available.) This article describes the spinach-packaging operation at Cavalier Brands, Inc., Cleveland, a major packager of vegetables in the northern Ohio area.

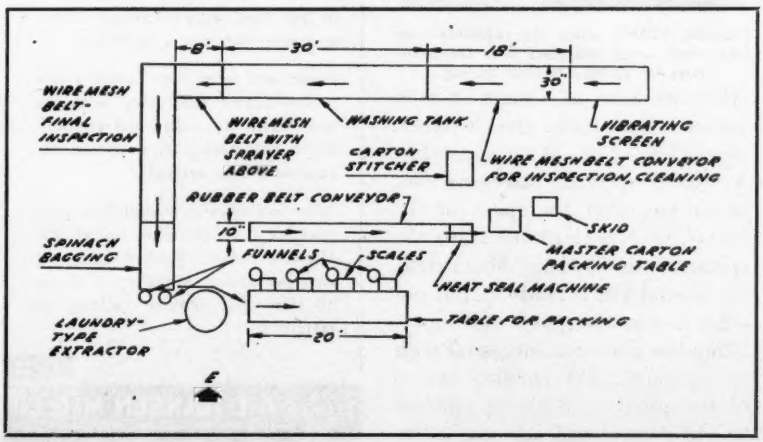
Vibrating Screens, Wire Mesh Conveyors

The company packages five products, tomatoes, spinach, kale, soup mix and salad mix. The spinach arrives by rail car in bushel baskets, which are delivered to the packaging room. The contents are dumped on a large vibrating wire mesh screen which has ½" openings. The screen sifts out large quantities of soil and other foreign matter, then discharges the spinach onto a 30" x 18' wire mesh belt conveyor. Its ¼" openings allow the soil to drop through not previously removed. Stationed along the slow-moving belt are an average of four girls, who pick out the spoiled leaves and cut off the roots. (Some spinach is received with the roots still attached. In this case, more girls are added to the line.)

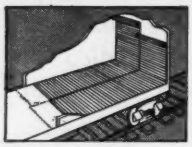
The conveyor discharges into a 30-ft.-long washing tank, where the spinach is thoroughly cleaned. Remaining soil is sprayed off and the vegetables are allowed to soak. The suction of the water out of one end of the tank and a reciprocating sprayer move the spinach to the far end, where it is picked up by a 30" x 8' wire mesh belt. The spinach is again sprayed on the belt to remove any matter which has clung to it during soaking.

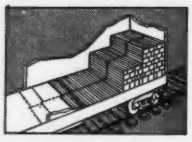
The inclined conveyor deposits the vegetables on a finer mesh conveyor which runs at right angles to the succeeding ones. Here four to six girls give the spinach a final inspection. The mesh is finer at this station because all dirt has been removed and only excess water need drain off. This conveyor delivers to a waist-high steel table where

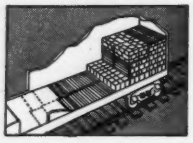
FLOW SHEET shows U-shaped layout for processing spinach.



Shippers of cartons using this modern carloading method are FOR it! Once you have tried it, you'll want it, too! It prevents cases from falling into those "voids" or "wells", at either end of the car, caused by jolts a freight car gets during switching or other normal handling. At little cost per car, and only a few minutes' time, shippers can save real money with the FIBREEN METHOD of UNITIZED LOADING.







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PACKAGING MECHANICS SECTION

operators push the spinach through funnels into net-type laundry bags,

VIBRATING SCREEN feeds spinach to wire mesh conveyor, then to washing. Note wire mesh carrying surface.

each holding approximately 20 lbs. Four of these bags are placed in a commercial laundry type extractor where the contents are dried through centrifugal action and warm air.

Packaging Is Weight Controlled

The dried spinach is dumped on a 20-ft.-long table, which is equipped with four over-under scales and four funnels. Three

FILLING TEAMS select the vegetable from table, then weigh and place it in cellophane bags for delivery to heat sealing.

operators work as a team at each station. One girl, the weigher, weighs out 12 ozs. of the vegetable. A second operator places a cellophane bag over the spout of the funnel, while a third one stuffs the spinach into the bag. Meanwhile, the second girl is ready to put another bag on the spout. Automatic filling has not been successful with the spinach. The clinging nature of the product precludes efficient weight control and accurate filling

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STENCIL DUPLICATOR
MANUFACTURED ONLY BY THE MULTISTAMP CO., INC. NORFOLK, VIRGINIA

"IT PRINTS ANYWHERE"

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ON CARTONS
ON SHIPPING TAGS
ON LABELS
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THE BALANCED DRIVE HANSEN TACKERS

IT'S no trick with Hansen, with its *Balanced Drive*, to tack more labels or tags or line more boxes, in less time, with minimum effort, and keep shipments on the go.

Faster and safer than hammer and tacks—neater than glue with its goo—Hansen quickly and securely labels shipments, for neat appearance and safe arrival.

Alike in shipping, assembly or production, the zip-zip action of the Hansen Tacker, light weight and easy portability, speed up all kinds of jobs that require tacking or fastening.

A. L. HANSEN MFG. CO.

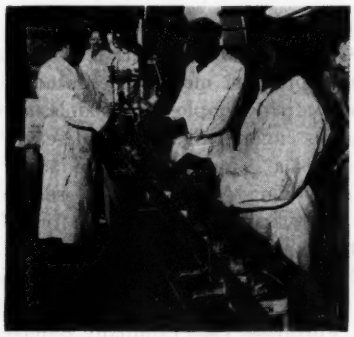
by mechanical means.

The filled bags are placed in an upright position between steel guides on a 10-in.-wide belt conveyor. They are thus carried into a heat seal machine, where the open ends of the bags are closed between hot plates. A dozen of the 12-oz. bags are placed in a master carton which is sealed and placed on a skid. The cartons are assembled and stitched near this station.

Methods Improvement Is Aim

With the methods outlined, 200 dozen 12-oz. bags are filled and packed per hour, giving a total of 19,200 bags during an eight-hour period. Production time varies from day to day, depending on the volume of incoming shipments. The equipment is set up to package kale during the periods when spinach is not received. Thus the machinery is almost in constant operation.

Certain improvements in the system are planned. Another laundry extractor is to be added to increase the drying capacity. This in turn is expected to speed up packaging operations and increase the total output. Other improvements, still in the planning stage, are designed to increase production during the short season.



RUBBER BELT conveys bags to heat-seal machine. At rear, carton packing station.

Sanitation is a keynote at Cavalier. All operators wear white aprons. Rubber gloves are used after the vegetables leave the washing stations. Tanks are drained every night and cleaned thoroughly. All conveyors, tables and surrounding areas are cleaned daily.

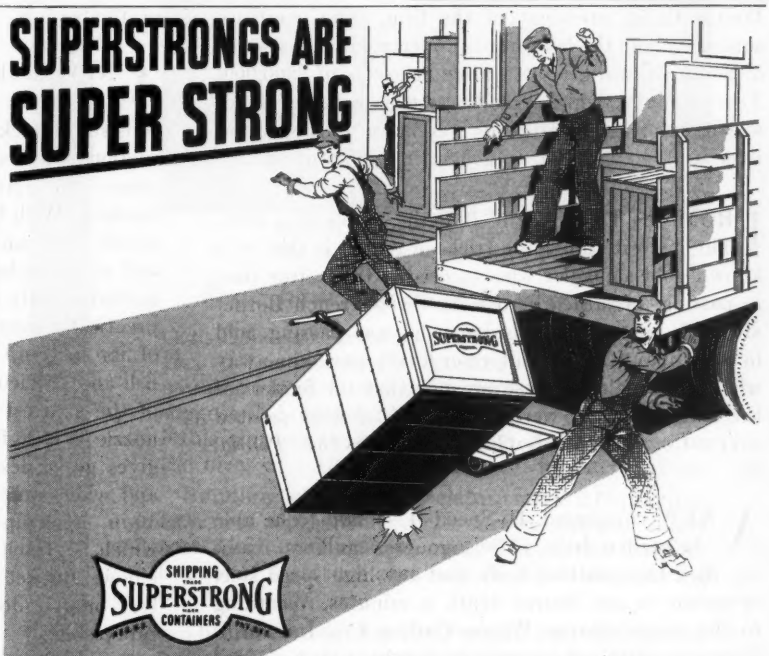
As a final point, it should be noted that large-volume handling and processing of this fragile product is directly dependent on the wire mesh belt conveyor integrated into the layout.

(The first of two articles on Cavalier Brands, Inc. Next month's description will cover the pre-packing of tomatoes. Ed.)

NEW 1949 DIRECTORY

The 1949-1950 FLOW Directory of Material Handling Equipment, Machinery and Accessories will feature a number of improvements over the first issue. Included will be more pages, an expanded engineering data section, improved product data classification, and a new geographical and alphabetical "Who Sells It" section. An indispensable guide for material handling engineers, executives and purchasing agents. Orders at $5 per copy are being accepted now for midyear 1949 distribution.

SUPERSTRONGS ARE SUPER STRONG



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WIREBOUND BOXES and CRATES
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STARCH TRAYS
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Nearly a century of experience has resulted in the design and construction of shipping containers which give maximum strength and protection.

SUPERSTRONG boxes and crates - wirebound, wooden and corrugated - incorporate special features which provide increased efficiency and protection at a reduced overall cost.

Your product will receive individual attention, so that a SUPERSTRONG container may be custom built to its particular specifications. A SUPERSTRONG representative will call when you request to make a thorough analysis of your shipping requirements.

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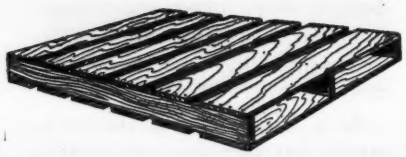
ON THE  PALLET

NEWS • VIEWS • TRENDS

THE Allis-Chalmers Mfg. Co. has purchased a surplus property disposal center, WAA warehouse 7, in Carrollville, Wis. The announcement was made by Walter Geist, president of the firm. The company agreed to take the lake front property, six miles south of South Milwaukee, at a price in excess of $300,000. The property, which comprises 68.7 acres of land, will be used temporarily for warehouse purposes and later will be converted to general manufacturing.

FROM the Little Giant Bulletin comes this item. The neatest smuggling trick on record is that of a known gold smuggler who succeeded time after time in passing unscathed across the Swiss-French Border although custom officials knew he was passing gold in large quantities. An informer finally gave him away when he revealed to customs men that the fenders of the smuggler's car were made of solid gold painted over.—*Courtesy, Little Giant Products, Inc., Peoria, Ill.*

A NEW compound, Hi-Speed-It, is said to be able to harden drills, chisels, gouges, caulkers, reamers, dies, taps, cutting tools, and any high speed steel or carbon to any desired depth in minutes. According to the manufacturer, Wilson Carbon Co., Inc., ordinary wire nails and common reinforcing rods hardened this new way can be driven through tough automobile spring leaf with no apparent dulling. In a recent test before engineers of a large railroad, a 1½" gauge was deep hardened in three minutes. No special skill or special equipment is said to be required. The object to be hardened is: 1. Heated to a cherry red color in an ordinary plumber's torch or an open forge or furnace. 2. It is then dipped, rolled or stirred in the gray powder. 3. 15 to 30 seconds are allowed for the powder to fuse and form a crust after which the object is again dipped lightly in or sprinkled with the compound. 4. The object is reheated cherry red. 5. It is then quickly quenched in clean, cold water or brine.

COLLEGES and industry must work together in producing competent, mature professional engineers, according to Dr. B. Richard Teare, head of the Carnegie Institute of Technology Department of Electrical Engineering. According to the professor, a clear, workable plan for a combined academic and practical engineering education would call for colleges to concentrate on teaching broad, general fundamentals. Industry should take it from there by teaching apprentice engineers the specific skills they need for a particular job.

A NEW method of harvesting oysters is reported by H. C. Rowe & Co., New Haven, Conn. It consists of picking them up from the ocean bed by suction supplied by a centrifugal pump, which replaces the former method with mechanical steel dredges. With the new method, the dredge blade and nozzle, with an opening approximately six feet wide and seven inches high, travels along the ocean floor behind a dolly equipped with a rubber tire, bringing practically everything up which comes within range of its suction. This includes oysters, starfish, other fish and particularly oyster drills (boring snails), one of the greatest pests in oyster life. Attached to the nozzle is a 20-ft. length of 10-in. suction hose which gives great flexibility to the equipment both in use and when stored. It is coupled to a 40-ft. length of 10-in. steel pipe, and another length of suction hose which is attached to the vessel by a long-radius steel elbow. Bucket and belt conveyors discharge the oysters onto a dock conveying system for delivery to processing.

THE Morrison Co., Cleveland, material handling equipment distributors, last month celebrated its 20th birthday. The company employs 19 people, and its own building houses engineering, sales and service departments. It carries a complete stock of equipment and parts, employing factory-trained service men. Morrison Co. is exclusive representative for the following manufacturers: American Engineering Co., Barrett-Cravens Co., Hyster Co., Nutting Truck & Caster Co., Union Metal Mfg. Co., Rapids Standard Co., Deluxe Metal Furniture Co. Company officials are: president, Harry C. Morrison; vice president, James H. Morris; and secretary, Mrs. Eleanor Mellinger.

ORGANIZATION of The Rapids-Standard Co., Inc. of California has been announced by C. Plin Mears, general manager. The new firm is located at 444 Brannan St., San Francisco. The company's complete line of equipment will be warehoused by the organization.

MEN IN THE NEWS

FRED M. CAROTHERS has been appointed district sales engineer, with headquarters in Meadville, by Highway Equipment Co., Pittsburgh. Prior to joining Highway, Carothers was with the Drott Mfg. Corp., and the Oliver Corp.

GEORGE G. RAYMOND, Jr., sales manager of the Lyon-Raymond Corp. was recently elected vice president by the board of directors. In addition to his new duties, Raymond will continue as sales manager.

ALFRED I. STURAT has been appointed head of the Methods Engineering Department of the Hyster Co., according to an announcement by Eugene Caldwell, vice president and general manager. Sturat will assume full charge of methods engineering for Hyster's three plants in Portland, Oregon, Danville and Peoria, Illinois.

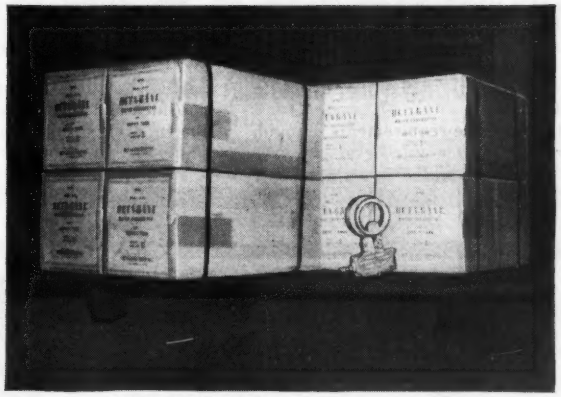
O. T. HENKLE was-elected president of the Mercury Mfg. Co. He succeeds Arthur G. Leonard, who died recently. Co-founder more than 35 years ago, Henkle has held the position of secretary and treasurer of the company for many years.

CHARLES C. BUSH has recently been appointed manager of the Cincinnati division of the General Box Co. He succeeds E. C. Marshall who died suddenly last month. Bush, a native of Cincinnati, has been with the company for 20 years.

CHARLES S. TRAER was elected chairman of Acme Steel Co. following the retirement of Ralph H. Norton. Carl J. Sharp succeeds Traer as president. Norton joined the company in 1904 and served as president from 1923 to 1941 when he became chairman of the board. Traer has been with Acme 33 years, and succeeded Norton as president in 1941. Sharp up until this time has been executive vice president.

Cut express charges by bundling shipments with

ACME STEELSTRAP



THE TEST SHIPMENT that proved a saving! Four cartons bundled as an Acme Uni-Pak.

Read how one shipper saved 43%!

Octo-Gane carburetors, made by Exola Products, Inc. of Los Angeles, are packed for shipment in 5-pound cartons. Before an Acme Shipping Specialist suggested bundling 4 cartons into one package, Exola shipped them separately and was charged on the basis of a 10-pound minimum for each carton.

Bundling with Acme Steelstrap made a big saving! In a cost comparison test, 4 cartons shipped singly cost $4.01 in express charges. The Acme Uni-Pak bundle of 4 cartons cost only $2.26—a cash saving of 43%!

This money-saving idea might well be applied *right now* to your shipping operation. But it is only one of the ways in which Acme Steelstrap and Unit-Load Band are saving time, materials, and money for thousands of users.

Acme Shipping Specialists know other cost-cutting solutions for your shipping problems. Ask for a free analysis—or for a free booklet of case studies—by using the coupon below.

STRAPPING DIVISION

ACME STEEL COMPANY

NEW YORK 17 ATLANTA CHICAGO 8 LOS ANGELES 11

ACME STEEL CO. CHICAGO

ACME STEEL COMPANY, Dept. F-59
2838 Archer Avenue, Chicago 8, Illinois

☐ Send free booklet, *"Savings in Shipping."*
☐ Have representative call.

Name_____

Company_____

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City_____ Zone_____ State_____

Light-Weight Tote Boxes

TO MEET a need for a light-weight tote box in a permanent mold foundry, the model shown here was developed. It had to be large, light, and rugged for foundry use. Increased container volume was needed to accommodate the large type castings that are prevalent today in the foundry, and the decreased weight factor came via state laws forbidding women workers from handling objects weighing over 25 pounds.

With the above requirements in mind, Russell G. Anderson, stress analysis engineer, of the Aluminum Co. of America, came up with a tote box, shown here, that may well come into wider usage. The model combines maximum strength and serviceability with a minimum in metal requirements. The former box, weighing about 40 pounds, could not be reduced in weight without sacrificing durability and adding to the maintenance problem.

After repeated experiments were made, 10 gage 52S-H34 (half hard) sheet was selected as the most desirable for the application. To achieve the lightest possible weight the sheets for the sides and the bottom were blanked out in evenly spaced circles having a diameter of slightly greater than 1". This feature permitted air circulation through the load of castings while they were being given the heat treatment necessary in some applications.

Sharp corners prevalent in the early experimental tote boxes caused additional problems in that they were stress concentration points and caused repeated failures under full-scale operational conditions. With this shortcoming in mind, Anderson designed corners having a minimum radius of one inch. The added feature of beveling the corners of the top-edge reinforcement helped immeasurably to make the box more flexible and at the same time allowed the reinforcement to stiffen the side panels.

The blanked out sheet side panels were joined on the wall of the box instead of the usual procedure of joining

them at the corner. This method afforded improved stress distribution and also helped to prevent failure.

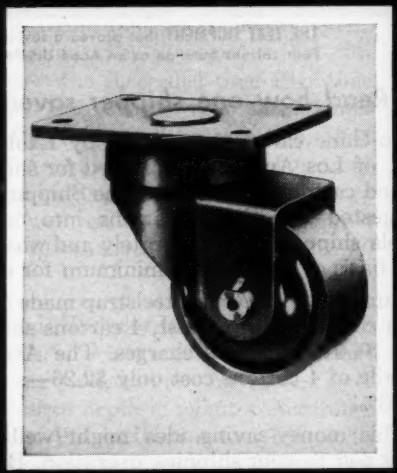
The bottom of the tote box was constructed of a separate piece of 52S blanked sheet. The corners were sheared off to provide a one-inch radius that attains additional flexibility and avoids stress concentration. To stiffen the bottom and to prevent sagging or buckling under loads an extruded aluminum U-shape was spot-welded into place.

In order to reinforce the top edge and at the same time to stiffen the side walls, an extruded shape was slipped over the edge. The extruded shape was designed to extend along the sides and ends of the box, but stops short of the corners. This, of course, was done to avoid stress concentration.

For ease in handling, this overhanging top edge of the extruded shape offered a point of contact for crane hooks.

All joints and reinforcing pieces were connected by welding. Spot welding was used to bring the sides and bottom together. The extruded beading along the top edge was tack welded onto the side plates. Additional strength is also attained by bending the bottom piece up and around the side panel for a 1½-inch lap before it is spot-welded into place. The box weighs less than 25 pounds and can accommodate four times the load of the heavier tote boxes used previously.

Darnell Casters



A SAVING AT EVERY TURN

DARNELL CORP. LTD. Long Beach 4, Calif.

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36 N. Clinton, Chicago 6, Ill.

Write for Free Darnell Manual

Best... FROM EVERY POINT OF VIEW!

THE NEW

aerotruker

Multi-Purpose Aluminum Alloy HAND TRUCK

Maintenance Chief Says:

The AEROTRUKER sure takes the headaches out of my job... no assembled parts to become loose — no bolts, no screws, no splinters. And say, those Aerol rubber-tired wheels are really something—they operate thousands of miles without greasing!

Warehouseman Says:

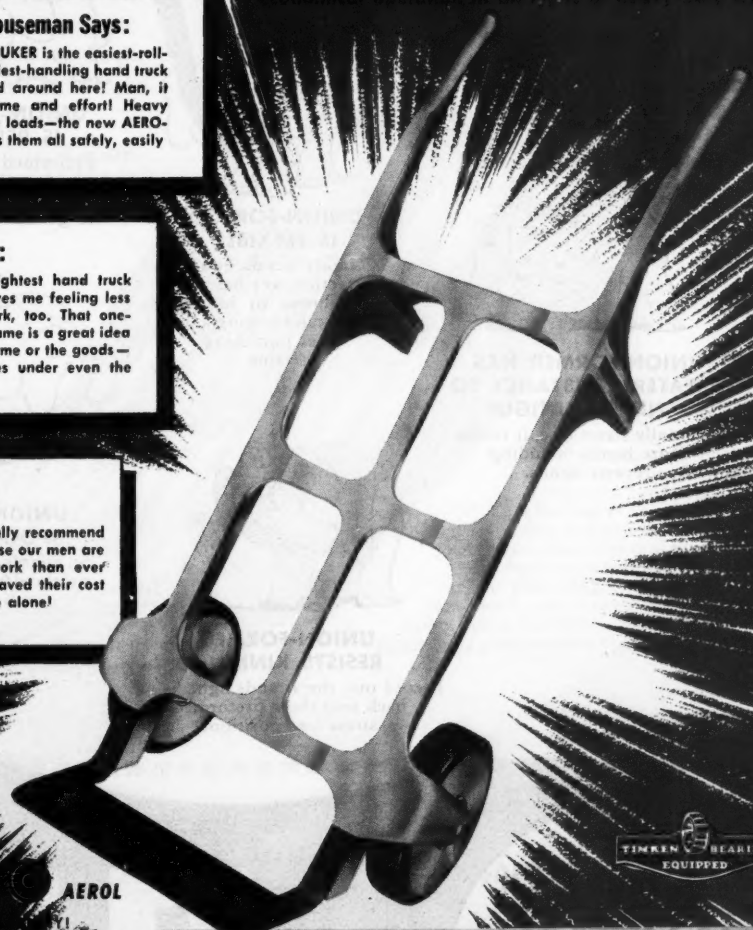
The AEROTRUKER is the easiest-rolling and easiest-handling hand truck we've ever had around here! Man, it really saves time and effort! Heavy loads or fragile loads—the new AEROTRUKER handles them all safely, easily

Trucker Says:

It's the strongest, lightest hand truck I've ever used — leaves me feeling less tired after a day's work, too. That one-piece aluminum alloy frame is a great idea — nothing on it to harm me or the goods — and it never weaves under even the heaviest loads.

Operator Says:

We can enthusiastically recommend AEROTRUKERS because our men are getting out more work than ever before, and we've saved their cost on maintenance time alone!

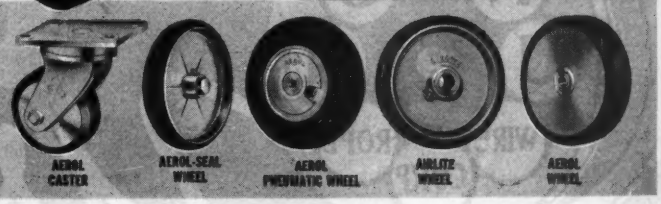


TIMKEN BEARING EQUIPPED

AEROL

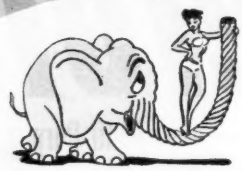
AEROL CO., INC.

2820 Ontario Street, Burbank, Calif.



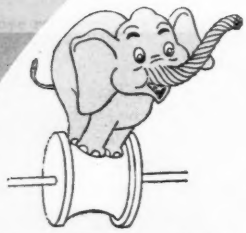
AEROL CASTER | AEROL-SEAL WHEEL | AEROL PNEUMATIC WHEEL | AIRLITE WHEEL | AEROL WHEEL

7 REASONS WHY union-f



UNION-FORMED is SAFER TO HANDLE

Users report 25% reduction of lost time due to accidents.



UNION-FORMED RIDES BETTER ON GROOVES

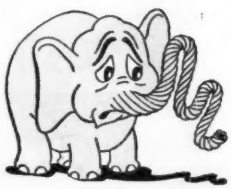
Does not spin, twist and grind through blocks nor over sheaves.

UNION-FORMED IS FLEXIBLE

Readily bends in any direction, yet has the toughness to longer withstand jerking and other punishing strains.

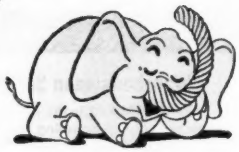
UNION-FORMED HAS GREATER RESISTANCE TO BENDING FATIGUE

Internally stress free, it resists more bends including reverse bends.



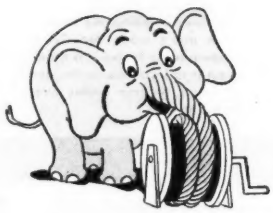
UNION-FORMED RESISTS KINKING

Forced out, the strands fight to get back into their preformed, stress free positions.



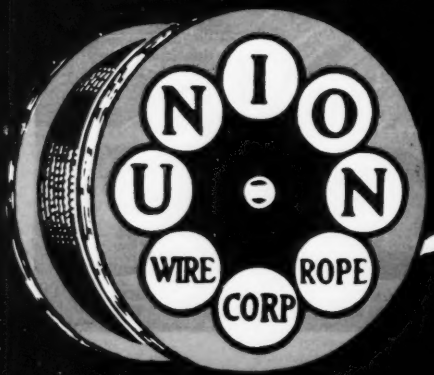
UNION-FORMED IS RELAXED

Preformed to fit their positions in the rope, strands do not fight to get out of position.



UNION-FORMED SPOOLS BETTER

So pliable it winds evenly on the drum even under a light load.



union
Wire Rop

-formed LASTS LONGER

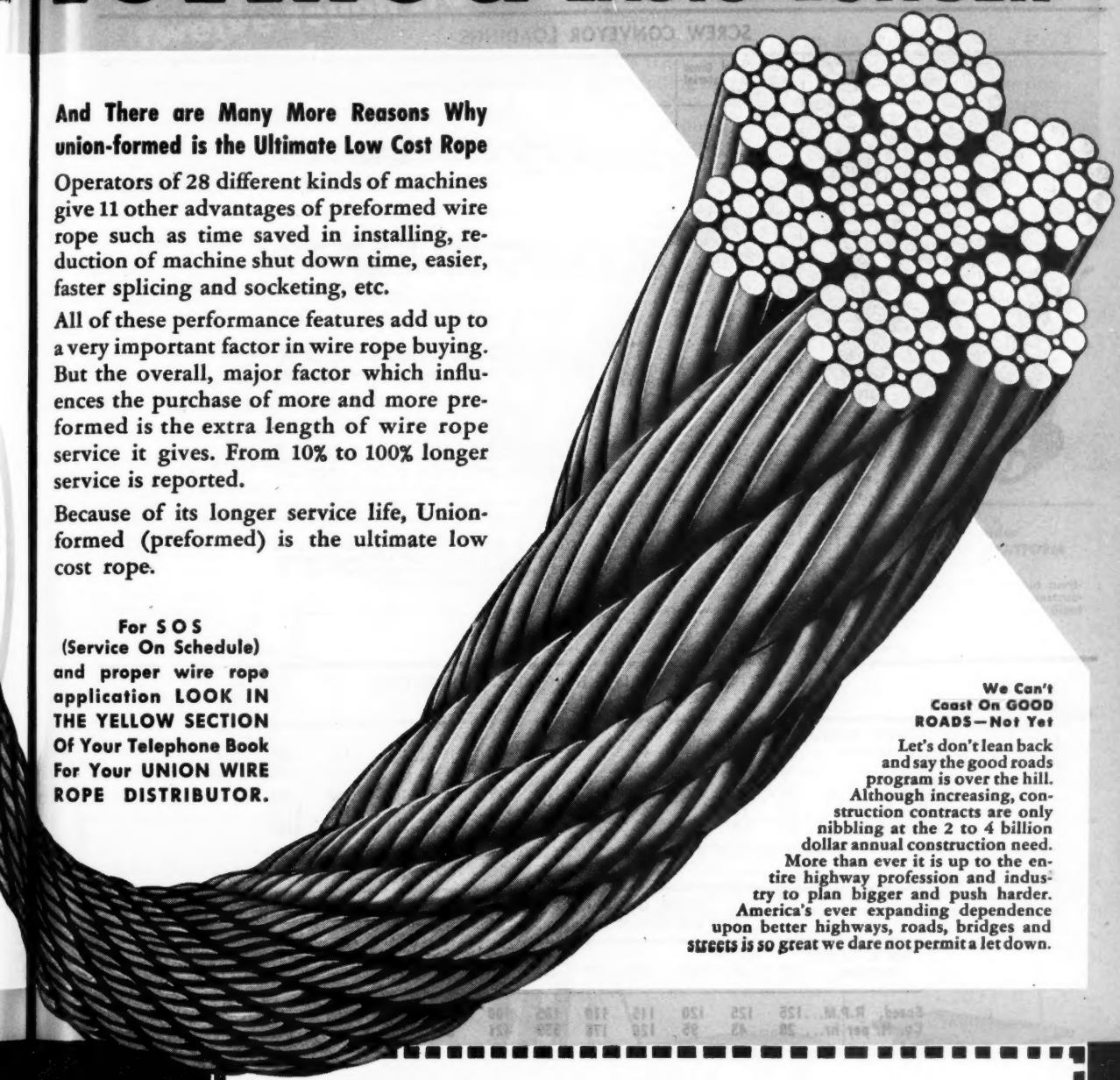
And There are Many More Reasons Why union-formed is the Ultimate Low Cost Rope

Operators of 28 different kinds of machines give 11 other advantages of preformed wire rope such as time saved in installing, reduction of machine shut down time, easier, faster splicing and socketing, etc.

All of these performance features add up to a very important factor in wire rope buying. But the overall, major factor which influences the purchase of more and more preformed is the extra length of wire rope service it gives. From 10% to 100% longer service is reported.

Because of its longer service life, Union-formed (preformed) is the ultimate low cost rope.

For S O S (Service On Schedule) and proper wire rope application LOOK IN THE YELLOW SECTION Of Your Telephone Book For Your UNION WIRE ROPE DISTRIBUTOR.



We Can't Coast On GOOD ROADS—Not Yet

Let's don't lean back and say the good roads program is over the hill. Although increasing, construction contracts are only nibbling at the 2 to 4 billion dollar annual construction need. More than ever it is up to the entire highway profession and industry to plan bigger and push harder. America's ever expanding dependence upon better highways, roads, bridges and streets is so great we dare not permit a let down.

UNION WIRE ROPE CORPORATION

2222 MANCHESTER AVE. KANSAS CITY 3, MO.

Send Book, Bulletin, or Circular as checked:

- ☐ Steel Tendons
- ☐ Wire Rope Lubrication
- ☐ Rope Dope No. 1
- ☐ Mining Rope Circular
- ☐ Splicing Wire Rope
- ☐ Choker Rope Circular
- ☐ Socketing Wire Rope
- ☐ Slusher Rope Circular
- ☐ Correct Handling of Wire Rope

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ADDRESS_____

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FLOW ENGINEERING DATA PAGE

A new, regular feature designed to help the engineer and others responsible for material handling. The FLOW Engineering Data Page will cover a different category of equipment each month.

SCREW CONVEYOR LOADINGS

Capacity Classification	Percentage of Cross Section in Material (Average)	Description of Materials
 I	45%	Light, fine, non-abrasive and free-flowing materials weighing up to 30 or 40 pounds per cubic foot, like pulverized coal, air-separated hydrated lime, and flour.
 II	38%	Medium weight, non-abrasive, granular or small lump materials mixed with fines, weighing up to 40 or 50 pounds per cubic foot, like cereals, cottonseed, light soda ash, sawdust, etc.
 III	31%	Non-abrasive or semi-abrasive granular or small lump materials mixed with fines, weighing from 40 to 75 pounds per cubic foot, like bituminous coal or screenings, refined sugar, coarse salt, and dense soda ash.
 IV	25%	Semi-abrasive or abrasive materials, consisting of fines, granular or small lumps mixed with fines, weighing from 50 to 100 lbs. per cubic foot, such as cement, shale, gypsum, ground or pebble lime, etc.
 V	12½%	Highly abrasive, lumpy or stringy materials, which must be carried at a low level in the trough to avoid contact with hanger bearings or interference with hanger frames. This is a special classification including such materials as ashes, coke and flue dust.

CAPACITIES OF HELICOID SCREW CONVEYORS

GRAIN

Size of helicoid conveyor	3"	4"	5"	6"	7"	8"	9"	10"	12"	14"	16"
Speed, R.P.M...	200	200	190	180	175	175	170	165	165	160	160
Cu. ft. per hr...	34	72	175	243	352	734	910	1205	2180	2935	5110
Bushels per hr..	27	58	140	195	282	586	728	965	1745	2350	4100

SAND, GRAVEL OR ASHES

(Dry, and with no large lumps or stones)

Size of helicoid conveyor	3"	4"	5"	6"	7"	8"	9"	10"	12"	14"	16"
Speed, R.P.M...	125	125	120	115	110	105	100	95	90	85	80
Cu. ft. per hr...	20	43	95	126	178	359	421	540	933	1200	2000

COAL

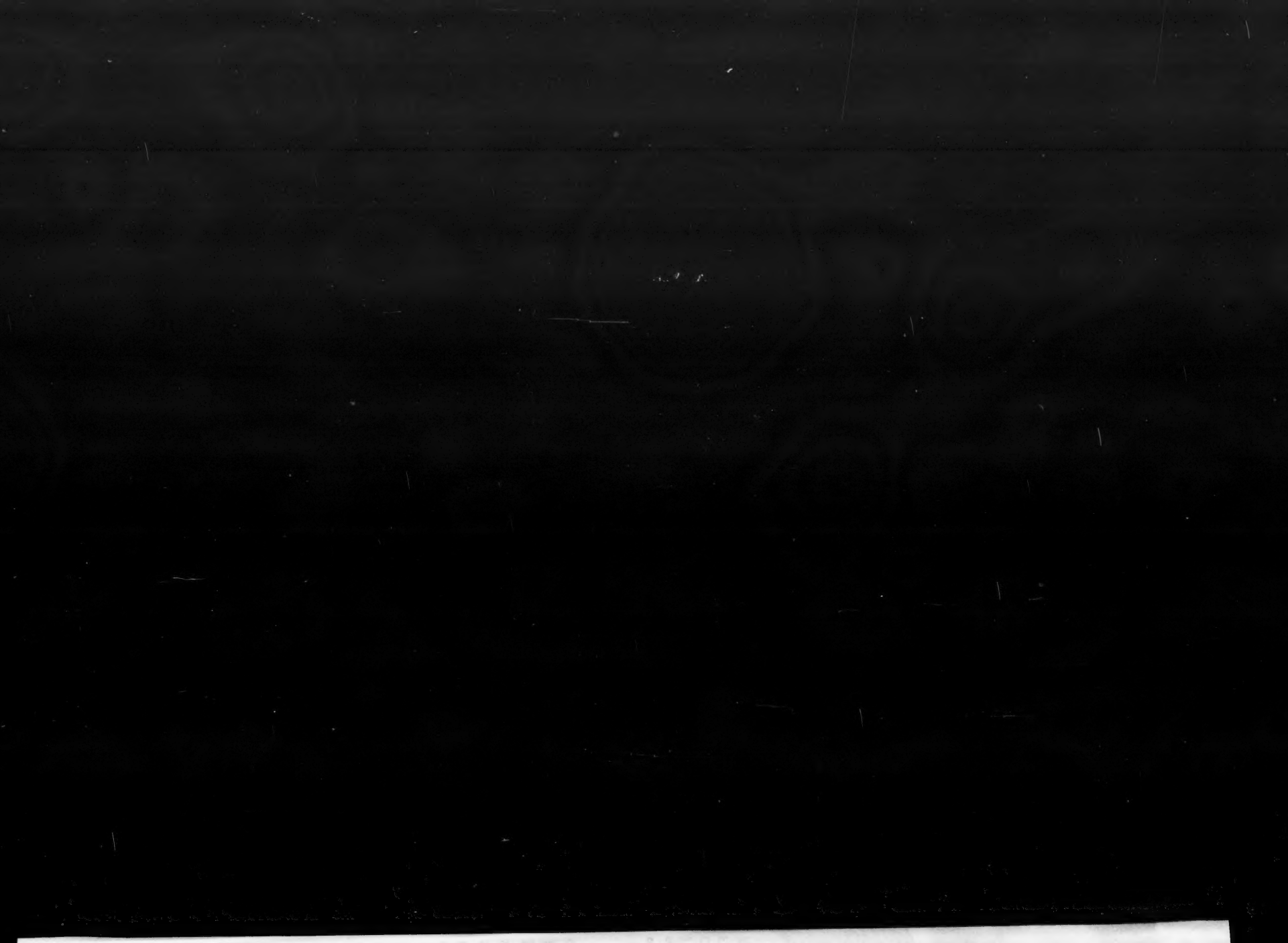
Screenings, or small sized coal, with no lumps larger than 1 inch

*Size of helicoid conveyor	7"	8"	9"	10"	12"	14"	16"
Speed, R. P. M.	110	105	100	95	90	85	80
Cu. ft. per hr.	269	544	650	838	1480	1905	3260
Tons—(2000 lbs.) per hr.	6.7	13.6	16.3	20.9	36.5	47.5	79.0

*Small sizes of helicoid conveyor not recommended for handling coal.

CEMENT

Size of helicoid conveyor	6"	7"	8"	9"	10"	12"	14"	16"
Speed, R. P. M.	125	115	110	100	100	90	90	85
Cu. ft. per hr.	167	213	468	541	735	1210	1635	2710



12 twelve tough trucks by fairbanks

Each truck in this bunch of huskies is rugged. Each proves its ruggedness by results. Each is built by Fairbanks to do a specific type of heavy duty – and do it under haulings and maulings and poundings and punishment.

In the service for which it's recommended, a Fairbanks truck shows its extra sturdiness by keeping big loads rolling in a big way. From the dozen trucks illustrated, select the one best suited for your purpose; when you put it to work for you, you'll see that your choice pays off.

WAREHOUSE TRUCK

Fig. 9272—For handling boxes, cases and miscellaneous merchandise on the floor or shipping platform. Lengths 48" to 60".

BARREL TRUCK

Fig. 9301—For handling barrels, cases, bags, drums and rolls. Four sizes, 48" to 60" lengths.

FREIGHT AND CARGO TRUCK

Fig. 9169—Extra sturdy parts for railroad and steamship use. Lower crossbar forms wheelguard 60" handles.

FREIGHT TRUCK Western Pattern

Fig. 9203-S—Heavy construction for railroad, packing house use, etc. Center straps welded to nose iron. Length 60"

BARREL TRUCK Western Pattern

Fig. 9207 – Wheels set between handles for use in narrow passages, curved crossbars. 48" to 54" lengths.

BARREL TRUCK

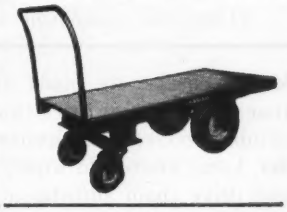
Fig. 9090—All steel, one-man truck with adjustable slide-lock, fits all barrels. Capacity 1000 lbs., Length 58"

CEMENT OR BAG TRUCK

Fig. 9217 – Heavy nose of ¼" steel plate provides strength for handling cement, fertilizer, etc., in paper or burlap bags. Length 52".

Commander STEEL-FRAME PLATFORM TRUCK

Fig. HQ2448—Steel bound hardwood platforms; sturdy construction, ball bearing wheels. Sizes from 24" x 48" to 36" x 72"

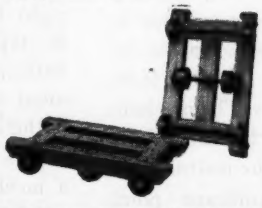


Commander STEEL-FRAME PLATFORM TRUCK

Fig. S2742-P – Tilting type, 8" diameter center wheels. Turns within own length. Sizes from 27" x 42" to 30" x 60"

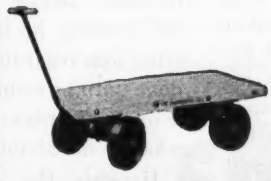
PIANO OR MACHINERY TRUCK

Fig. Y1112 – Sturdy mortised construction with ½" tie rods at ends. Balances on two center wheels for easy handling of heavy equipment. Size 22" x 36".



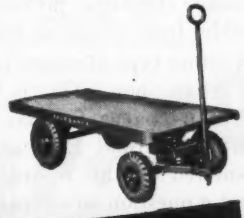
HEAVY DUTY WAGON TRUCK

Fig. 01459 – Four ton capacity. Solid iron cross sills support hardwood strips bolted with ⅝" tie rods. Large fifth wheel. Size 36" x 72"



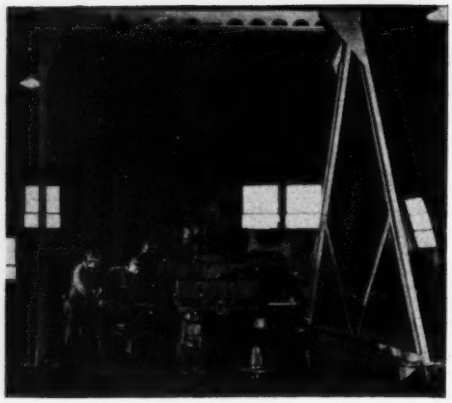
ALL STEEL METAL TRUCK

Fig. 01960-X – Continuous angle frame with round corners and solid steel plate platform. All welded construction. Sizes from 24" x 48" to 36" x 72".

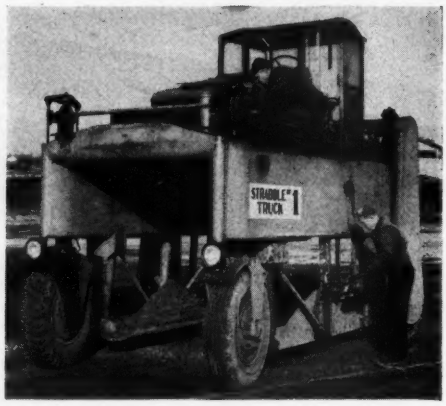


Shown above are twelve headliners that rate top billing in the complete Fairbanks line of hand trucks and platform trucks for all kinds of duty, including the heaviest. There are many others also well worth knowing. Send for Catalog No. 50. The Fairbanks Company, 393 Lafayette St., New York 3, N. Y.; Boston, Pittsburgh, Houston.

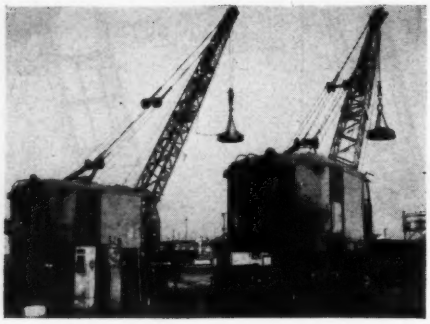
American industry rolls on **fairbanks trucks**



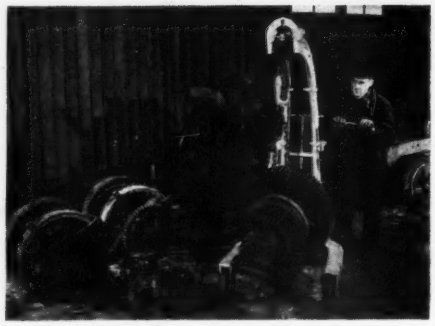
ADEQUATE REPAIR equipment and work area. Manually propelled gantry crane handles big jobs.



REGULAR LUBRICATION. No exception to the rule.



LUBRICATING cranes before start of turn.



REPLACEMENT UNITS are ready for installation. Handling equipment aids repair work.

MAINTENANCE JOB . . .
(Continued from page 29)

lowing checks are made at that time: battery, gear cases (for proper lubrication), brake master cylinder, horn, windshield wiper, clutch and drive chain adjustments, also fuel filters and the ignition system. On other equipment, booms and the cables of the lifting attachments are checked. Again, these periodic checkups prevent small troubles from becoming large ones.

Another type of record is used in the repair shop. This is kept by the maintenance foreman for his own information. Each oil change is entered on this record. In the event a question on a repair should arise, properly recorded oil changes will show that dirty, worn out oil cannot be the cause.

The foreman maintains a page in this record for every major piece of equipment. Every repair is noted as often as equipment comes into the shop for attention. Thus the foreman has a maintenance and repair history for checking purposes. While the Equipment Availability Record shows up failures on the job, the foreman's record gives supervision a check on all repairs that have been performed.

Supervision And Manpower Distribution

Proper supervision and control of manpower is as important as any other factor for effective maintenance. Here is how the work load is controlled by the repair shop foreman. Before he goes home in the evening, he leaves written instructions regarding the work to be done until he returns. The mechanic on duty writes on the same sheet what he did about the instructions.

Here is the significant point about this arrangement. In his instructions the supervisor schedules units which are to be overhauled—that is, in the event the mechanic's full time is not required by current maintenance jobs. The continuing work on the spare units—complete clutch units, motors and transmissions, for example—assures both that they will be available for replacement when needed and a busy mechanic during the night turns. The tear-down of motors, incidentally, is done at night, the build-up by an engine man during the day turn.

The principle regarding "unit replacements" was explained in the March article, likewise the distribution of the department's manpower on the various shifts. It may be well to recall that the distribution allows for one man on every night turn and a full crew during the day turn from Tuesday through Saturday. On Saturday the equipment is not running, and hence it is the best day for repairs.

The round-the-clock presence of a mechanic also has a bearing on preventive maintenance. It assures that minor repairs will be attended to as they occur. The small defect must not be allowed to develop into a major breakdown.

Service Where And When Needed

As was previously stated, two Timken steel plants are involved

in this description. The Canton and Gambrinus plants are located three miles apart with material handling equipment working interchangeably in both. Our maintenance function is organized accordingly.

On the grounds of the Gambrinus plant we maintain a fully equipped repair shop. All mobile material handling equipment is serviced from this central location. However, it would amount to going home the long way if vehicles operating in Canton were brought to Gambrinus every time they needed a minor repair or adjustment. For this reason one mechanic works day turns at the Canton plant. He attends to smaller daily jobs on fork lift trucks and scoop and straddle trucks working regularly in Canton. It is only for major repairs that this equipment is brought to Gambrinus.

Thus, again, the maintenance man in Canton cuts off major repairs by catching small defects. There is another important advantage. This mechanic has contact with vehicle operators on all three shifts. He sees the men quitting in the morning, is present throughout the day turn, and has contact with the men going to work in the afternoon.

This personal contact between operating and maintenance people, we found, best serves the cause of preventive maintenance. In this way the repair man is enabled to know what the operator found out about a difficulty when it first developed. Such information is necessary for a thorough diagnosis and for preventing the same failure from happening again.

A conventional check list has its merits. Under such an arrangement, a vehicle is driven into the repair shop, with the list or tag relied on to tell what is wrong. We have avoided placing undue emphasis on forms.

Our separate material handling equipment maintenance department is still in a state of flux, due largely to the rapid acquisition of additional equipment and the growth of material handling as a

NEW

ANOTHER MATERIALS HANDLING FIRST

RIDING TYPE "JACKLIFT" ELECTRIC TRUCK

Now you can ride the walking type "JackLift"

SAVES LEG WORK on the long hauls . . . Saves money all around the plant . . . on regular runs . . . in cramped quarters or narrow aisles.

REDUCE COSTS with this easy-maneuvering "Standrive" dependable "JackLift" Electric Truck. Operator rides or walks. Operates truck with handle in every position . . . All controls in the handle head . . . Instant smooth-action electric brake.

Platform and Pallet models — capacities 4000 and 6000 lbs. Tractor model for trailer trucks. Low maintenance. High efficiency. Long life.

MULTIPLY MANPOWER · LEWIS-SHEPARD

A "MASTER" ® LINE PRODUCT

For complete information write...

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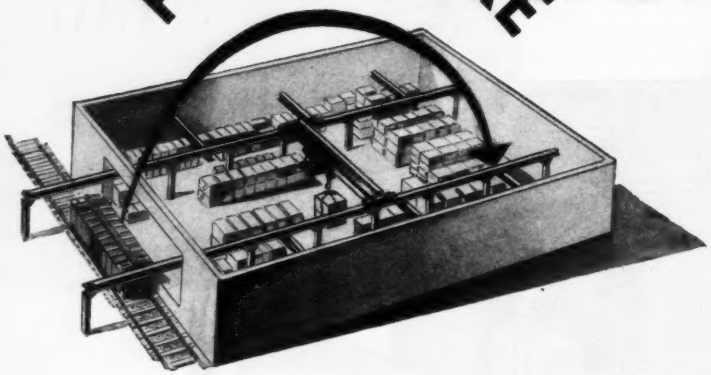
MIDWEST PLANT CRAWFORDSVILLE, IND.

115 WALNUT ST., WATERTOWN 72, MASS.

REPRESENTATIVES IN PRINCIPAL CITIES (Lewis-Shepard) CONSULT YOUR PHONE DIRECTORY

"STANDRIVE" POWER FORK TRUCKS • "JACKSTACKER" ELECTRIC TIERING TRUCKS
"JACKLIFT" ELECTRIC TRUCKS • STACKERS • CRANES • SKIDS • PALLETS
HYDRAULIC AND MECHANICAL HANDLIFT TRUCKS • FLOOR TRUCKS • RACKS

PUT IT THERE



Faster, Cheaper and With Greater Safety

THROUGH THE AIR

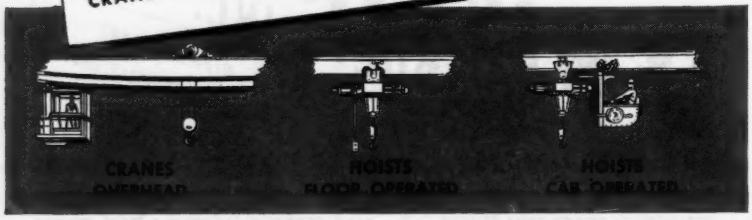
A quick hook-on to a pallet, basket or standard sling and the load is whisked away—cutting across occupied floor space—straight to the spot where you want it.

It's smart, and thrifty to use "through the air" transportation as widely as you can in plants and warehouses. Compare this method for overall cost, efficiency, maintenance and safety before you allow other means of transfer to overlap the service that is best performed by cranes and hoists!

Let the Shepard Niles specialist break your problem down for you—he's experienced, skillful and he has the maximum number of sizes and types in his product line.

SHEPARD NILES
CRANE AND HOIST CORPORATION

Makes and sells all three lifting tools for airborne shop loads.



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distinct function. Paper work, it will have been noticed, is at a minimum. While provisions are in effect not to make it more important than the job itself, steps are being taken to evolve any other records that may be necessary.

They will of course have to meet the criterion expressed in the question: Can they help toward the end of a more effective *preventive* maintenance job?

LOAD UNIT . . .

(Continued from page 18)

If the pieces require heating (the forge shop is part of a continuous room with the punch and shear department), a standard metal front-end dump type of box is used, with sleeves at the sides for entry of the forks. The sleeves have a pivot point at the front of the scoop, allowing the material to be dumped into the cleaning mills. This scoop type container is spotted at the discharge end of the forge presses, receiving the red hot forgings as they are ejected. After the cleaning operation the cooled parts are discharged into the previously described standard tote boxes.

In this case, too, the use of a specific type of container for a group of varied parts results in uniform, orderly practices which in

turn have a noticeable effect on housekeeping, safety, and economical handling. And you do not see men straining themselves in lugging or lifting of loads. This is done by the fork truck.

Long simple parts requiring forging are placed on 1-2-1 trucks with steel decks, which are used throughout the forge department. At the last operation the completed pieces are placed on steel racks which are also shown in one of the photos. This load carrier is described in the following section.

Safe, Compact Stacking Racks

Both oblong forgings and pressed metal parts are handled and stored in these racks. The dimensions of this unit, like that of the tote boxes, is likewise 32" x 32". A flared cup at the top of each vertical member is for support of the rack stacked above. A buffer is welded to the bottom of the legs for secure nesting in the cup, which is a continuous member. Another feature of the construction is designed for ease in spotting the loads during stacking. The upper diameter of the flared cup is four inches, the leg diameter two inches. The flared shape facilitates correct spotting of the loads and serves as a guide in stacking.

Another feature is incorporated in the design of these racks for safe operation. Welded to the center of the rack on two sides is a ⅜" retainer, slightly S-shaped. This was added for short pressed metal or bar stock parts which do not extend across the full width of the rack. Thus no short pieces can fall out at the sides. Meantime the racks are as adaptable to pieces which are 15 inches long or 144 inches long. If the parts extend several feet on both sides, the racks are merely spotted farther apart. In either case, orderly and safe stacks are built to the height of the lift of the fork trucks.

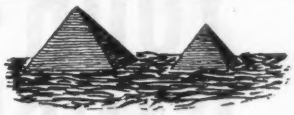
From the shear, press, saw and forge departments the loads are transported to the centrally located simple parts storage area. These are parts which are complete in

FLOORS

Ingredients that are more durable than the Pyramids!

GREASE-PROOF

Camp's Grease-Proof Magnesium Composition



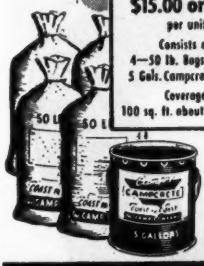
As hard or harder than concrete.

One Unit covers approximately 100 sq. ft., ½" thick. $25.00 per Unit/or $23.00 per Unit—5 Unit lots or more.

For bonding over wood, apply over metal lath. Concrete floors must first be chipped. This composition will not feather-edge.

Ready for traffic in 24 hours.

Camp's #7 INDUSTRIAL FLOOR RESURFACER



Takes care of over 90% of all industrial floor problems.

Non-slip . . . Dust-proof . . . Ready for traffic in 24 hours.

This material will feather-edge. Easy to mix . . . Easy to apply.

Only $15.00 for complete Unit to cover 100 sq. ft., approximately ¼" thick.

Orders of 5 Units or more $13.00, or 10 Units or more $12.00.

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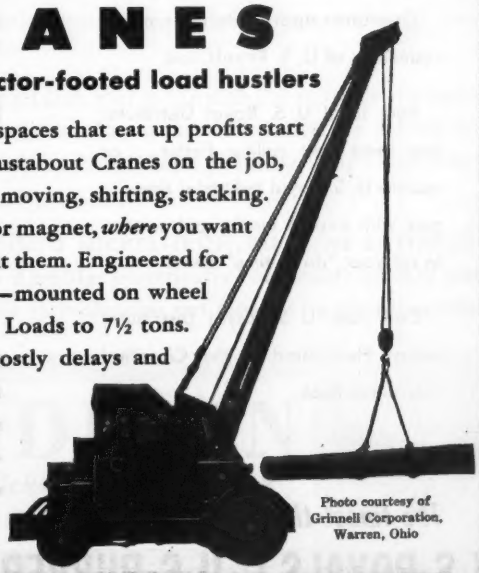

Photo courtesy of Grinnell Corporation, Warren, Ohio

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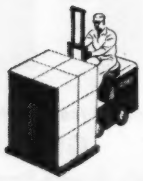

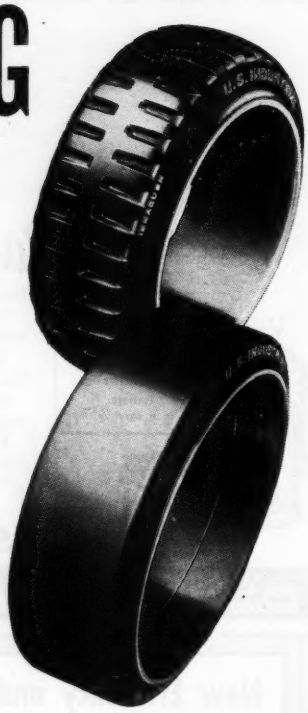

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Your local U. S. Royal Distributor can keep you rolling *better*... on quality U. S. Royal Industrial tires... and with expert *on-the-spot* service, to cut your "down time" costs!

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The finest tires you can buy are

U.S. ROYALS *by* U.S. RUBBER

U.S. *load-rated* INDUSTRIAL TIRES

themselves and ready to be assembled to the planters or harrows.

Some of the photos suggest the orderliness that prevails in the extensive simple parts storage area. Hundreds of different items are here stacked close to the ceiling in the two types of containers. (The dump-type bin for hot parts is not used for storage purposes.) With single-piece handling, two or three dozen operators would be picking over individual simple parts. With the load unit method, boxes and racks containing hundreds or thousands of parts each are unstacked and whisked away to destination—safely and without muscle-straining effort on the part of any operators.

(In the concluding part, to appear next month, the author will describe the handling of certain assemblies, several fork truck attachments and the load unit method in relation to other departments.—Ed.)

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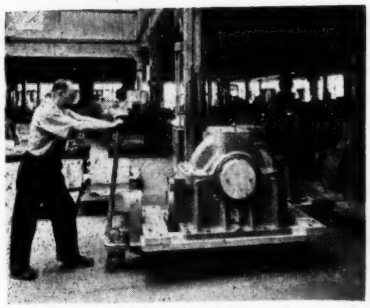

which the finished machine is shipped. Some manufacturers secure the first and lowermost part of the base to a wooden frame which serves as the bottom of the crate when the finished machine is ready for the user—and as the skid deck while the unit is being moved about during construction.

The hand truck, shown here, is well adapted to these short-haul operations from station to station. The hand truck is rolled under the skid, its deck is raised by a few strokes of the handle, and one man pulls away a load weighing up to 12,000 pounds.

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HARDWOOD PALLETS

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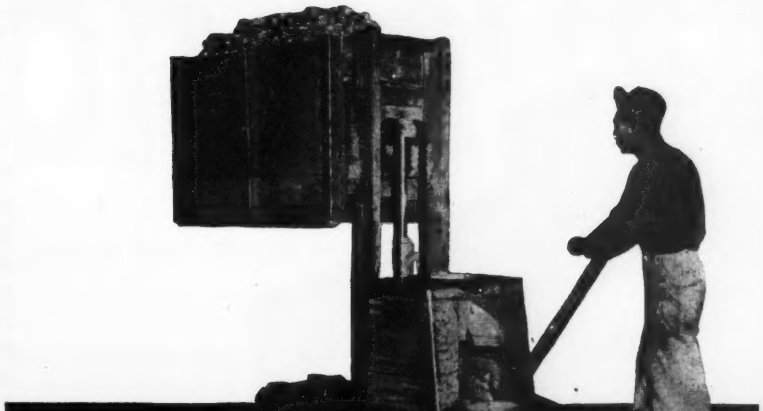

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IS YOUR FIRM getting its first taste of battery-powered handling by using one or more motorized hand trucks? Chances are that you're trying out your equipment on all sorts of jobs . . . and realizing in how many ways battery-industrial trucks can speed handling and increase production.

If so, now is the time to become acquainted with long-life EDISON Nickel-Iron-Alkaline Storage Batteries . . . the batteries that give you real dollar economy. Did you know they're electrically foolproof — require no critical adjustment of charge rates — can't be injured by reverse charging, short circuiting or similar electrical accidents? Did you know they're built of rugged steel inside and out to withstand rough usage? Did you know EDISON Service Engineers check your batteries regularly and help you to maintain them in top condition?

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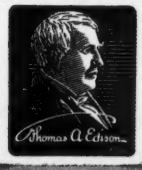

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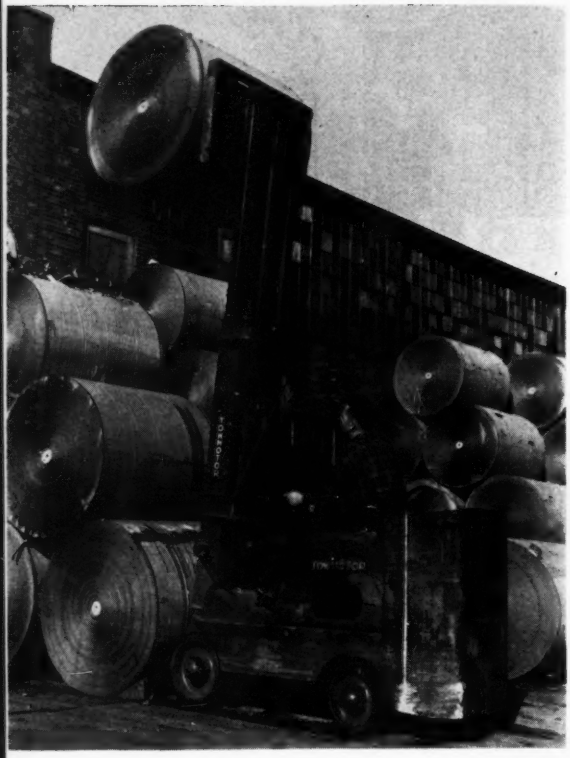
FORK TRUCKS, FLOOR-TO-FLOOR ELEVATOR, POWER-DOORS, PAPER ROLL DOLLIES

How a four-man crew moves 300,000 lb. of roll paper daily between three operations on two floor levels. The following equipment is integrated in the company's efficient material handling system. 1. High stacking fork trucks. 2. A revolving type paper roll truck. 3. Powered doors. 4. An automatic floor-to-floor elevator. 5. Paper roll dollies.



FORK TRUCK PYRAMIDING rolls of paper horizontally in the storage area.

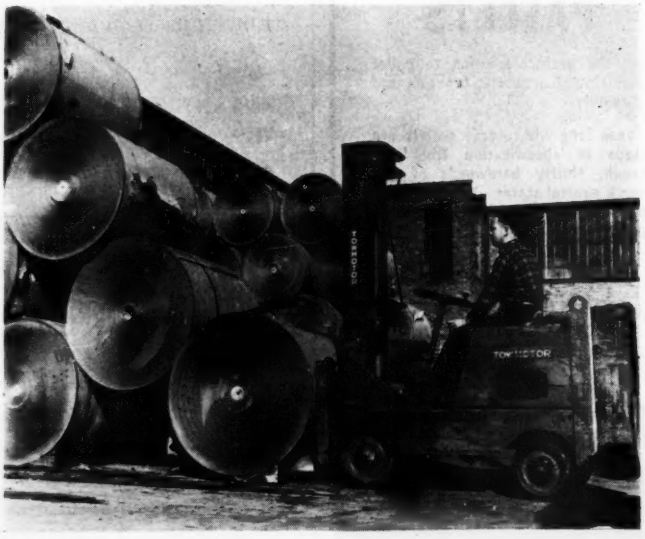
The *Same* inventory in *Half* the space

THE task of unloading, storing and disbursing 310,000 lbs. of paper rolls each day in a two-story layout was the problem confronting the Hankins Container Company plant of Cleveland. After considerable study, the solution was worked out with a handling system which includes the type of equipment enumerated in the subtitle of this article. The correlation of this equipment enabled four operators to handle the sizable volume of paper with ease and safety.

Hankins is a manufacturer of corrugated paper board and corrugated boxes. The raw materials required consist of two main types. 1. Semi and bleached sulphite paper received in 36" rolls ranging in widths from 5" to 30" and weighing from 50 to 750 lbs. each. This stock is primarily used in the manufacture of sleeves for packing lamps. 2. Kraft and jute paper in 48" rolls ranging in width from 32" to 61-½", with weights from 1400 to 2800 lbs. each. This stock when fabricated becomes corrugated paper board. Of the six carloads of raw stock which are received daily, five are kraft and jute, the other sulphite.

Doors in Material Flow

The cars of incoming stock are received on a spur adjacent to a covered receiving dock at the south



FORK TRUCK removing bottom roll from pile. Other rolls are lowered one tier at same time.

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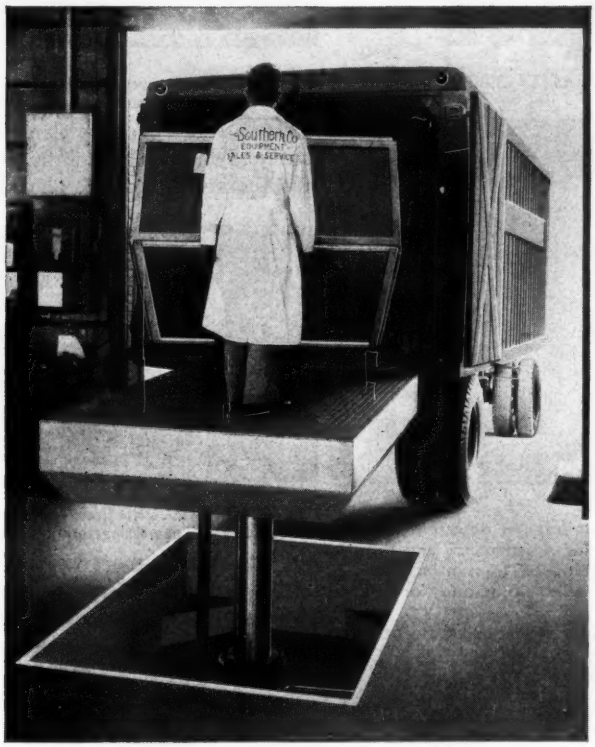
Levelator pays for itself in a few months



Your file on materials handling equipment is incomplete without a Levelator catalog. Contains detailed description and illustrates wide range of Levelator applications. Mail coupon below.

Levelator Oildraulic Lifts handle heavy materials directly from plant floor to trucks, freight cars or different building levels. Labor costs drop, plant traffic speeds up, efficiency increases. Oil hydraulic operation (compressed air or electric) is powerful, dependable, economical.

Levelator recesses into floor and can be trucked over . . . eliminating need for loading dock and ramps. Metal skirt guards furnished when required.

Quantity-production price on Standard Levelators

90% of all short-haul lifting problems can be solved most economically with the Standard Levelator. Load deck is 6'x8', capacity 6,000 pounds, maximum rise 5 feet. Through quantity manufacture in this size, Rotary offers Levelator efficiency at minimum cost. For machine feeding, transfer bridges and other special uses, Levelators are built in larger sizes, with capacities up to 80,000 pounds.

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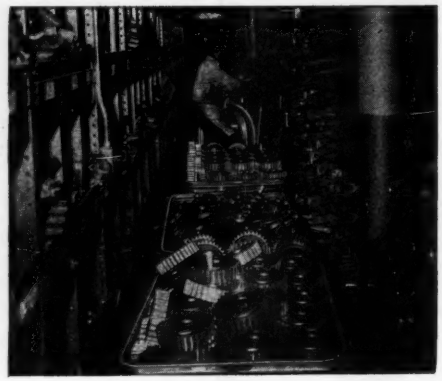
The LOAD DISPATCHER

A RUGGED RAPID MATERIAL HANDLING TRUCK — CAPACITY 3,000 POUNDS

At this busy southern machine shop, a Load Dispatcher tractor handles a three car tow easily in a manner that amazed the management in and around surroundings that used all the floor space allotted to storage and crowded the aisles to a high degree.



The extreme maneuverability of the Load Dispatcher is one of its many qualities that adapts it so readily to the requirements of busy factories, foundries, warehouses, etc., where floor space is valuable and at a premium. It is handy and a money maker on hundreds of jobs where the aisles are narrow and crowded and the going is tight.

Its first cost is amazingly low because of its utter simplicity in design which assures also the very minimum in time out and expense for maintenance and the surprisingly low cost for daily operation. The Load Dispatcher needs no transmission —no clutch—no radiator, no anti-freeze—no electric batteries, no standby or recharging equipment.

The Load Dispatcher is a well-built, strong device produced in one of the best equipped factories in America for precision work.

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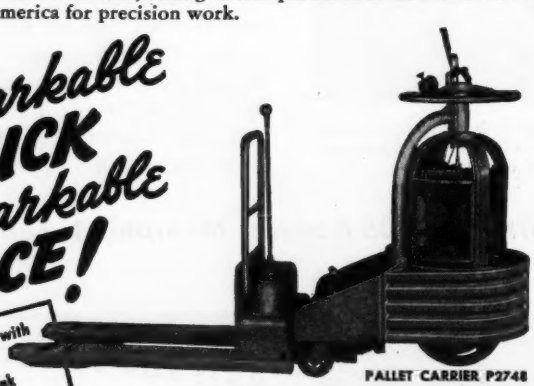

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Material Handling Truck Division

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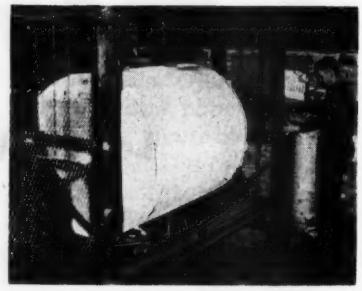
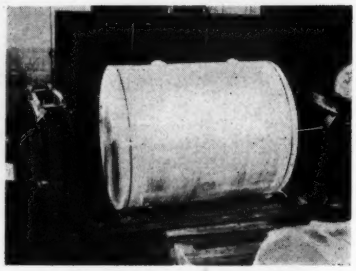
side of the plant. The material is taken to storage areas on the first floor or delivered to an outside



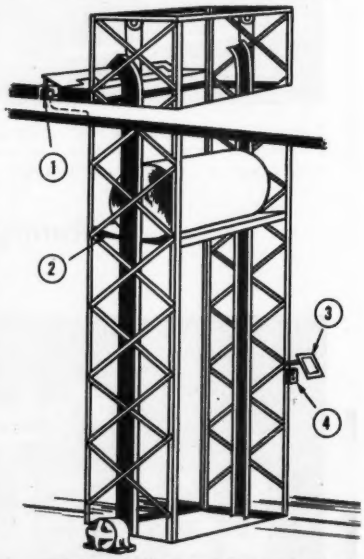
OPERATOR SENDS paper roll to second floor, while making delivery notation on tally sheet.

storage area north of the plant. The semi and bleached sulphite paper must be stored inside. The kraft



ROLL REACHES SECOND floor. Platform tilts paper on rack, depressing return switch.

and jute stock is more weather resistant and outside storage can be used for limited periods of time.



1. RETURN SWITCH which automatically sends elevator to first floor. 2. V-shaped platform for retaining load. 3. Stock notation tally sheet. 4. Starter button for elevator.

The procedure is to maintain the moving bank material on the out-

side and the static bank under cover.

To deliver the stock from the box car to the outside area requires the truck to travel through the plant. In order to avoid truck waiting time, semi-automatic doors

DRIVER STARTS to revolve his load to a horizontal position for ensuing operations.

were installed at the north and south sides of the building. These doors are the elevating type and are powered by means of electric motors and suitable gear reduction units. The controls are placed some distance away and in such a position that the switch can be manipulated by the truck operators without leaving the vehicles. The door is open by the time the vehicle reaches it, thus maintaining a material flow through doorways.

Kraft and Jute Rolls on Chisel Forks

The fork trucks used are equipped with chisel point forks, designed for insertion under the kraft and jute rolls which are handled in a horizontal position. The fork truck driver lowers the fork to the floor adjacent to the roll and drives his truck forward to force the fork beneath it. During transport, the fork is tilted back in the usual manner. Upon delivering the paper to the storage pile, the driver elevates and then tilts the fork forward, discharging the roll onto the nested stacks. The material is pyramided to a height of 11-½ ft., and wooden chocks are placed against the bottom roll of each tier in order to prevent load shifting.

To remove the paper, the truck

• No Exposed Current Collectors, Trolleys or Wires
• Rating: 15 Amperes—550 Volts, A. C.; 250 Volts, D. C.

Speed! Safety! Uninterrupted Power! Longer Cable Life! Appleton Reelites bring all four to materials handling.

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A P P L E T O N

operater inserts the fork under the lowest roll in the stack. He removes the chocks on each side of the roll, then backs up slowly. The bottom roll is thus pulled out, and the top three rolls are gradually lowered by one tier, as shown. The operations that follow require the driver to release the load and pick it up from the end or straddle position. The load is thus taken to the east end within the building, where it is set adjacent to the floor-to-floor elevator.

Well Engineered Elevator Operation

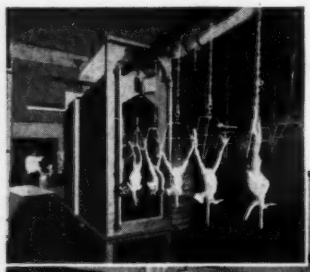
This elevator is similar to the portable four-post type except that it is not equipped for portability. It is installed in a pit on the first floor, with the load carrying platform approximately two inches below the floor level. The platform is "V" shaped to safely retain the load being lifted. The elevator extends to a point three feet above the second floor level (see sketch). To transfer the roll on the elevator, the fork truck operator drops the load adjacent to it and backs away. A slight push advances it on the elevator platform. One of the photos shows the two-handed operation used in operating the elevator switch and making a stock notation on the tally sheet.

OPERATOR REMOVES TOP roll from storage. Tongue is inserted and roll is then cradled.

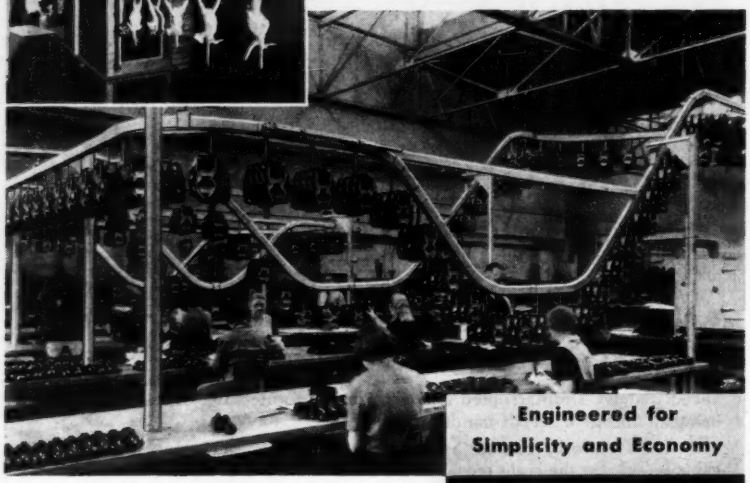
When the platform reaches the second floor, it automatically tilts to one side, causing the paper to roll onto a storage rack. To make the operation entirely automatic, an elevator return switch is mounted on the receiving rack on the second floor. The weight of the paper roll on it depresses the switch, and the elevator is thus returned to its loading position on the first floor without requiring any attention from an operator. The paper roll rack is about eight inches off the floor. This permits the rolls to be pushed from the rack to the paper roll dollies which are spotted below. The dollies used at this point are of the balanced type, with two large wheels in the middle and one smaller wheel at each end. The deck is also "V" shaped.

The haul from the paper rack to the corrugating machines, a distance of about 20 feet, is done by the machine operators during their machine time. The balanced type paper roll dolly is handy because the heavy loads can be swiveled in small space, which is an aid in loading the corrugating machines. To transfer the roll to the machine, a mandrel is inserted and the load is

(Turn to page 81)



Turkeys or Telephones...



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- Horizontal and vertical wheel units alternate in a continuous chain traveling through special steel tubing.
- Complete flexibility for installation in any plant. Easily installed, easily changed to conform to plant alterations.
- SAFE—all moving parts fully enclosed.
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- Load capacity: Single suspension 65 lbs. per foot—double suspension 125 lbs. per foot.
- Standard horizontal or vertical curves—two-foot radius. (Stock load pendants including automatic turning units available.)

Richards-Wilcox Mfg. Co.
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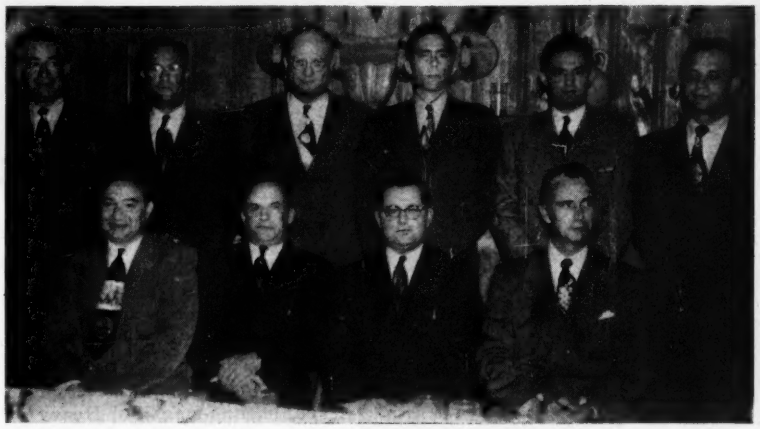
AURORA, ILLINOIS, U.S.A.

INSTITUTE CHAPTER AND ASSOCIATION ACTIVITIES

THE May 23 meeting of the Indiana Material Handling Society will be devoted to the annual outing and the election of officers. The April session heard W. H. Ott, Jr., general traffic manager of the Kraft Foods Co., talk on "Transportation and Material Handling". Ott explained why material handling, transportation, and distribution cannot be separated.



The board of directors of the Houston Chapter, Material Handling Institute, Inc. Seated left to right: W. Blackman Davis, vice president; Ivan M. Shore; O. T. Henkle, Jr., Mercury Mfg. Co., guest speaker; T. E. Parish, president. Standing, left to right: T. G. Frazee; Hubert Wade; R. L. Owens; T. R. Williams; John Traxler; J. A. Grundy, secretary-treasurer.

"HIDDEN Dollars and Cents in Air and Railroad Freight Transportation" was the subject of a panel discussion held before the April meeting of the Midwest Material Handling Society, Chicago. The May 10 get-together will hear three editors of material handling magazines. The subject of this panel forum will be "Spot News of Advancements in the Material Handling Industry".

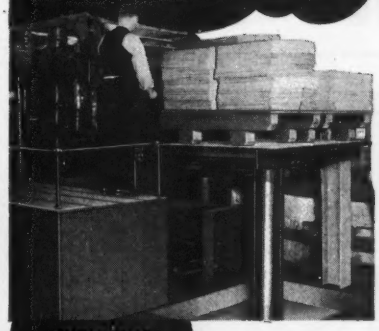
A REPRESENTATIVE of the Great Lakes Steel Co. will speak on "Material Handling in the Steel Industry" at the May 18 meeting of Detroit Chapter, Material Handling Section, American Society of Mechanical Engineers.

THE New England Chapter of the Material Handling Institute, Inc., has joined the American Society of Material Handling. The action was voted at the March meeting of the chapter in Boston. Some 250 members and guests also heard Howard Pearl, vice president and eastern regional director of the Rapids-Standard Co., Inc. Pearl's subject was "Flow Handling vs. Unit Load Handling in Multi-Floor and Single-Floor Warehouses." Walter Metcalf, past president of the New England Chapter has been elected president of the new national group. Some eight or nine other regional chapters have also become members in the American Society and it is believed that additional groups will join in the coming months.

AT A RECENT meeting, the Central New York Chapter of

(Turn to page 82)

SPEED UP MACHINE FEEDING



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SAVE
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Cut your machine - feeding costs . . . raise materials UP to machine level with a Globe Production Lift. It saves all that costly time-lag of workmen stooping, stretching, or reaching. Boosts production as much as 1/3. Foot pedal control keeps material level for fast, profitable feeding. Simple, fool-proof, installs anywhere.

Let Globe's specialized Lifting Engineers help solve YOUR materials handling problems.

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GLOBE HOIST COMPANY
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MIRED... in waste motion?

The camera tells the story! It costs time and money to move materials by hand. The light streaks are the camera's record of wasted motion . . . made by attaching a light bulb to the worker's wrist.

No waste motion here! With the low-cost Barrett Lift-truck, it's a simple, one-man job! Heavy loads are lifted easily . . . lowered gently by hydraulic check.

Put the Skids under it!

THE THRIFTY BARRETT WAY!

It's pretty tough to save money if you have to plod along with outmoded handling methods. What a difference the modern Barrett System makes!

With Barrett Lift-trucks and Skids, materials are simply left on the skids . . . in and out of storage, from room to room, and floor to floor! Zip! A sweep of the Lift-truck handle —and the load's ready to move. It eliminates all the loading and unloading, piling and unpiling. In fact, materials are moved so quickly and smoothly that *one man with a Barrett can actually outwork three or four!*

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ONE MAN DOES MORE THAN 3 OR 4 . . . WITH A BARRETT

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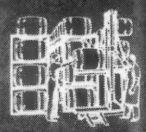
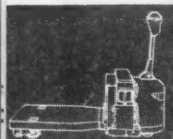
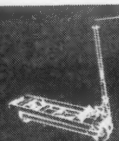


STEEL STORAGE RACKS



ELECTRIC

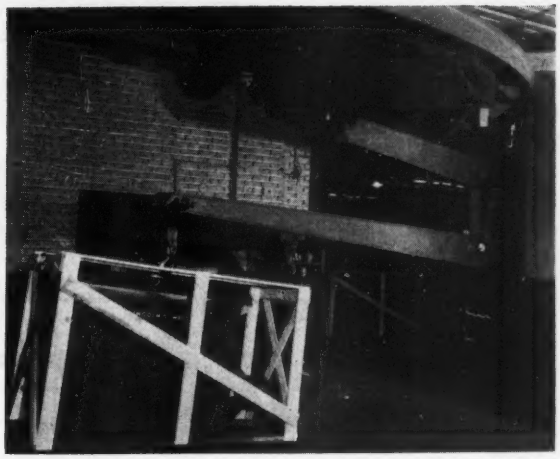


SKIDS

BARREL TRUCKS

Barrett Handling Equipment

MONORAIL CRANES transport crated models to the accumulation area. Rear of loader right.



HAIRPIN LOADER makes 90° turn into shipping room. Operator steadies load during travel.

HAIRPIN HOOK

with Built-in Hoist

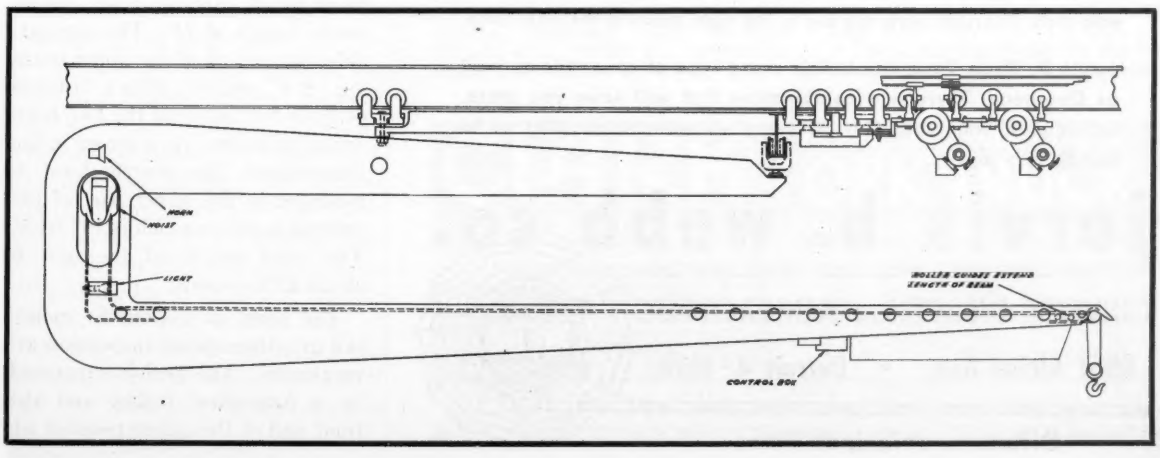
UNTIL last June the welding machines manufactured in our plant were all hand-loaded into highway trucks. For the heavier models this involved depositing them first on the truck dock then rolling them into position in the truck on pipe rollers. Since we loaded several hundred welders a day, and the weight range of the welders is from 150 to 4000 pounds, we were faced with a problem involving both excess time and the hazard of undue physical effort.

By WILLIAM IRRGANG
Methods Engineer
Lincoln Electric Co., Cleveland.

Finding nothing available that could be installed here to reduce the cost and hazard of hand loading, the factory turned the problem over to the methods engineering department. Approaching the problem as one of integrating material handling into other straight-line, low-cost production methods being installed in the plant, our engineers came up with the solution in the design of the giant hairpin hook shown on these pages.

The hook was fabricated and welded by our own millwright department and was tailor-made to fit our particular difficulties in loading. The 26-foot 6-inch length

SKETCH shows arrangement of loader, hoist and running tackle, trolleys, and tractors.



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The "unused half of your factory" **. . . space above machine and work level . . . is seldom used. You pay for it when you erect the building . . . why not use it?**

Webb Overhead Conveyors . . . Continuous or Power and Free . . . put the unused half to work. Production is increased, smoothed and automatically programmed. Productivity is improved. Valuable floor space is released for manufacturing. Live storage banks are provided off the floor, out of the way. Frequently, parts produced on two or three shifts are banked for assembly consumption on one shift. The right parts are fed to the right place at the right time.

Jervis B. Webb Company builds every type of conveyor as well as Overhead. There is a combination that will save you more. Let us plan with you. Our 30 years' experience qualifies us to handle any job. 5176

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of the carrying beam was designed to reach into the noses of the longest trailer bodies in making deliveries of the welding machines. As is shown in a drawing, the running tackle of the electric hoist extends within the carrying member of the hook over rollers. Behind this installation is a story of time-consuming study and engineering.

Designed for All Trucks

A main factor in the design of the hook was the different types and sizes of delivery vehicles which it had to enter. Company engineers studied all truck bodies which came into the plant, as well as others which did not normally serve us. The result of this study was the three-foot clearance between the two parallel beams of the hook. A mid-line drawn between them would equal the height of the roof of the average highway carrier, leaving additional clearance for safe and easy manipulation of loads.

Other factors considered were: 1. The weight and height of the welding machines to be loaded. 2. The line of the hook's travel from the accumulation area to the shipping dock, taking into account a 90-degree turn in the monorail trackage (through the doorway). 3. The method of suspending the hook from the monorail. 4. The lateral movement required both in picking up and in spotting the loads within the truck bodies.

Here are the principal dimensions of the all-welded hairpin hook. The lower 26′ 6″ carrying beam has an inside length of 25′. The comparable dimensions of the upper beam are 18′ 6″ and 17′, with a distance of three feet between the two horizontal members. As is shown in the illustrations, the electric hoist is mounted in the upper part of the vertical member which is 18″ wide. The total weight of the unit is about 2500 pounds.

The hook travels on the monorail in a three-point suspension arrangement. The heel is supported by a four-wheel trolley and the front end of the upper member by

a second four-wheel trolley which rides a traveling beam. The beam bridge, in turn, rides the main monorail track on an eight-wheel trolley. The length of the traveling beam is approximately six feet and allows the front end to swing laterally as the hook passes the 90-degree turn through the doorway. Lateral movement is also necessary in loading and unloading. Motivating power is supplied by two standard monorail tractors. This arrangement is shown in the accompanying sketch.

Lifting and lowering is accomplished by the electric hoist mounted in the vertical section of the loader. Its running tackle travels through the lower beam over a series of rollers, as shown. The hoist is controlled by a lever which is located on the side of the lower beam near the front. The hairpin loader travels approximately six feet per second and has a lifting rate of .16′ per second. A horn mounted on the hook warns workers of its approach, and two electronic headlights, mounted on the heel, facilitate spotting of the loads in truck bodies.

175 Feet in 90 Seconds

Here is a typical loading operation, which involves a total travel distance of 175 feet. Completed welding machines are crated (boxed for export) and delivered to the finished goods storage area. This area is covered by four two-ton monorail bridge cranes which deliver the outbound welding machines to the accumulation area served by the loader hook.

To pick up a crated machine, the operator pushes the hook laterally in the desired position. (It will be remembered that the lateral track or monorail bridge is an integral part of the installation to allow side-to-side travel.) The hoist hook is then lowered and attached to the lifting lug at the top of the machine. The load is lifted clear of the floor (about 18 inches) by the built-in electric hoist. The travel of the hook is controlled from a

(Turn to page 81)

MATERIAL HANDLING *News*

Handling costs quickly dropped 50 per cent in the Flint yard of J. P. Burroughs and Son, Inc., when Clark forklift trucks were installed. Even in unexpanded facilities, 33 per cent more materials are handled with ease.

A new warehouse *designed for modern materials handling*, and Clark electrics to do the work, cut handling costs 30 per cent for Associated Food Stores Cooperative, Inc., in New York. Savings benefited member stores instantly by enabling them to meet or beat competitors' prices.

Think of saving 75 per cent of the time required to unload a big trailer and reload it with fresh goods by the

Clark method! That's the pleasant story told by Cleveland Coca-Cola Bottling Company. Clark machines perform other duties, too, at bottling plants and warehouses.

✓ Saved! 50% for a builders' supply yard

✓ Saved! 30% for a grocery warehouse

✓ Saved! 75% for a bottler

WHAT'S YOURS?

What's yours? How big is your own potential saving attainable through faster production, lower demurrage charges, fewer accidents, less damage and utilizing neglected "air rights" for live, profitable storage?

It costs nothing to *find out* how big a saving this potent cost-cutting principle can achieve for your business. Just CONSULT CLARK.

Useful reading—write for the current issue of Material Handling News.

CLARK ELECTRIC AND GAS POWERED FORK TRUCKS AND INDUSTRIAL TOWING TRACTORS

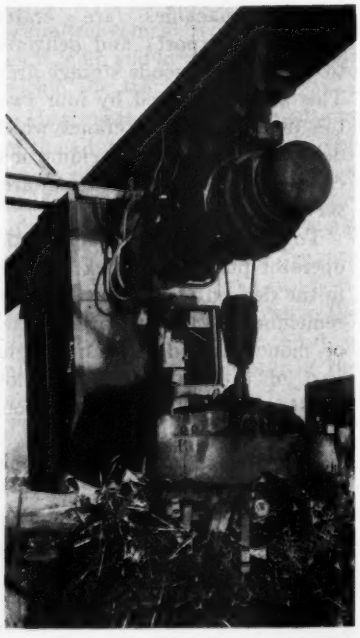
INDUSTRIAL TRUCK DIV., CLARK EQUIPMENT COMPANY BATTLE CREEK 23, MICH.
REPRESENTATIVES IN PRINCIPAL CITIES THROUGHOUT THE WORLD
AUTHORIZED CLARK INDUSTRIAL TRUCK PARTS AND SERVICE STATIONS IN STRATEGIC LOCATIONS

◀ MOBILE CRANE transfers tin scrap from storage to surge pile. Here the material is . . .

PICKED UP by monorail hoisting unit traveling high above ground. It is then discharged . .

▼

INTO TANKS serving a chemical treating process. Scrap is first weighed. Note cab and magnet.



Charging 60-Ft.-High Tanks . . . safely and economically

Former work hazards and waste time have been eliminated through the combination of a yard crane and cab-controlled hoisting unit for serving a continuous charging operation.

YARD CRANE, MONORAIL HOISTING UNIT, LIFTING MAGNET

WHEN the job requirement is to charge treating tanks with tin scrap from a height approximately 60 feet above the ground, you are apt to have a material handling problem. If the scrap is hoisted in baskets from the ground to the elevated point of use, the job is likely to involve pitchforks for shoveling. The pitchfork operation will not only require excessive manhours but will also involve some hazard because of the close physical contact on the part of the men with the sharp-edged scrap. Cuts of this kind tend to bring on infections.

Yard Crane Serves Hoisting Unit

The Chemical & Pigment Division of the Glidden Co., Baltimore, solved this problem with a cab-controlled monorail hoisting unit, which is served by a pneumatic tired mobile crane. The sequence of the operation can be seen at a glance in the accompanying series of photos.

The scrap consists of can punchings, light-weight, tangled material which is required for the reduction of the iron content in a titanium sulphate solution, which in turn is used in the manufacture of titanium dioxide pigment. The scrap is delivered by highway dump trucks and is stored in a pile which is about 50 feet from the open steel structure on which the monorail unit runs. The dumped material is stacked to a height of about 10 feet by the pneumatic tired crane oper-

STEEL WAREHOUSE CUTS HANDLING COSTS

75% for heavy stock
30% for light stock

WITH

BAKER CRANE TRUCK

A steel supply company faced the handling problem of unloading sheet stock, bar stock and pipe from box cars, storing it in special racks, and loading it onto highway trucks for delivery to its customers. Even with a lift truck, much manual handling was required.

The problem was solved with a Baker 2-ton Crane Truck, which quickly and easily unloads material from box cars to a point where it can be handled by overhead crane. The Baker Truck also facilitates placing material in racks (as shown) and loading highway trucks. Its use has effected savings of 30% handling light stock, and 75% for heavy stock.

A Baker Material Handling Engineer can show you how similar savings are possible in your plant.

BAKER INDUSTRIAL TRUCK DIVISION
of The Baker-Raulang Co.
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Baker INDUSTRIAL TRUCKS

Lower Your Manufacturing Costs With

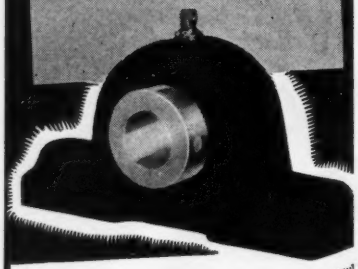
Roberts

BALL BEARING

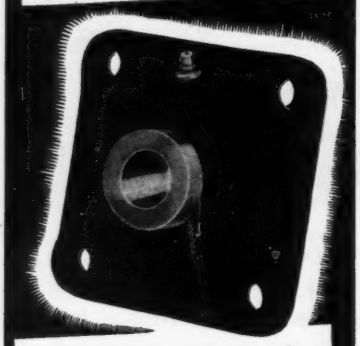
PILLOW BLOCKS

AND

FLANGE UNITS



Roberts Pillow Blocks and Flange Units are designed to carry light loads at speeds up to 1,000 R. P. M. Heavy duty cast iron housings with grease fitting are provided. Felt seals give ample protection for the bearings.



Roberts Pillow Blocks and Flange Units may provide anti-friction bearings suitable for your application at lower cost. Ideal for conveyors and farm machinery.

Write today for catalog, engineering advice, and prices. Territories open for agents, distributors and dealers.

Roberts

MACHINE WORKS

A DIVISION OF MINNESOTA BEARING CO.

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Minneapolis 3, Minnesota

ating with a lifting magnet. The stacking of the loose scrap tends to compress it, which gives maximum storage per square foot of area used. And the proximitiy of the stockpile to the point of use—the structure that supports the attack tanks—makes possible short runs on the part of the crane.

The yard crane maintains a surge pile under the south end of the monorail track on which the hoisting unit runs at a height of 58 feet above ground. The surge pile contains enough material for approximately 72 hours of continuous operation. This ample supply—plus the short runs—leave the crane free to attend to other material handling and maintenance operations in the extensive yard.

Built-In Scale Saves Time

The monorail track, 100 feet long, is hairpin-shaped and extends along three sides of the unwalled I-beam structure that supports the attack tanks. The hoisting unit operator picks up about 600 pounds of the light scrap with the 36-inch magnet at each pass, as shown.

The load is then run from the longitudinal south track to the north track, where the series of attack tanks is arranged in a line extending about 45 feet. The load is weighed on a floating beam located just ahead of the first tank, and each charge is recorded by the operator. The load is run over the hatch, the power is cut from the magnet and the tank is charged.

The generator for the magnet is in the cab of the hoisting unit. The cab affords the operator protection against the rigors of the weather. All parts of the monorail equipment are weather-sealed and the motors are enclosed.

There is no crew shoveling scrap into baskets. There is no incidental rehandling to consume time, nor is anyone close enough to the scrap to expose himself to the danger of cuts or infection. Handling by yard crane and monorail provides a clean and safe operation, also an economical one—the specific objectives of the installation.

PROFITS "ride the beam"

Meet the upswing in material and labor costs through greater efficiency in production and cost control. Productimeter Electric Counters, actuated by a photo electric cell, present production figures that create "magic" profits.

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Wt. 114#

$8.95 ea.

Brand New Rubber Tires on Above Trucks $2.00 Ea. Additional

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Values Up To $30.00

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The "Little Hustler" is fully portable and quickly adjustable to a wide range of applications. The 8 foot size shown above has a maximum delivery height of 81 inches at 45° and 50 inches in a horizontal position. Made in 13 models: 4-6-8-10 and 12 ft. long, by 12", 18" or 24" wide. Also special sizes. Send for circular LHC. We design and manufacture permanent conveyor systems and all types of SPECIAL EQUIPMENT.

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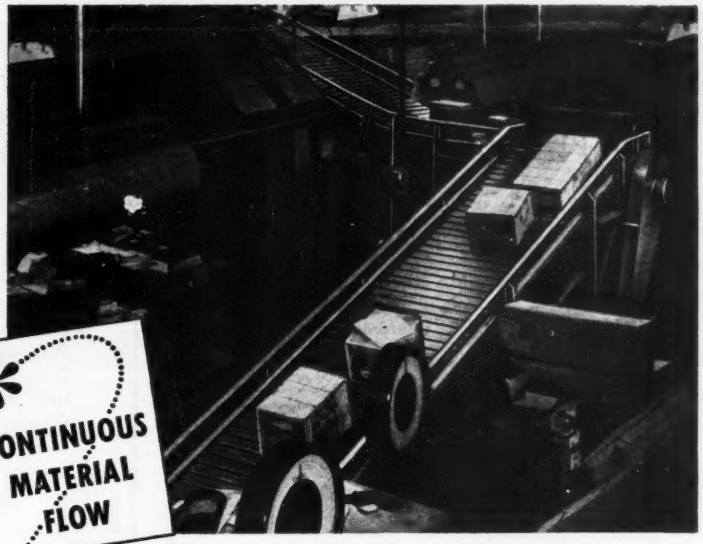

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Put material handling on a continuous basis with Olson conveyors. In single units or in complete systems, Olson conveyors meet every requirement for lifting, lowering or on-the-level handling. Call Olson today for details on standard or custom-engineered equipment . . . for the answer to your problem through continuous material flow.

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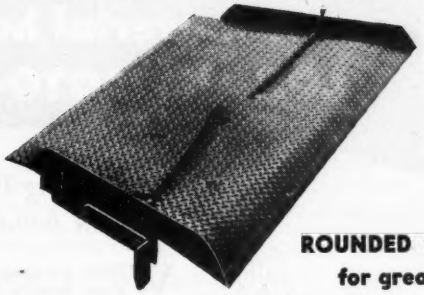

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. . . Instead of the Customary One. Self contained; no loose parts, positive in action. Closed when load is applied—cannot be opened until load is released.

Capacity In Tons	Length	Width	Hook Opening	Link Opening	Weight In Pounds
1	7¼"	3⅜"	1⅛"	1⅛"	1¾
2	8½	4	1⅜	1⅜	3
3	13	5½	2	2	8
6	15½	7	2½	2½	18
10	18	7½	3	2¾	28
20	23	10½	4	2⅞	65

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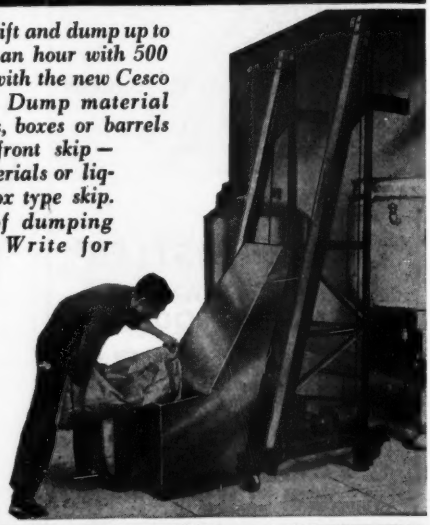

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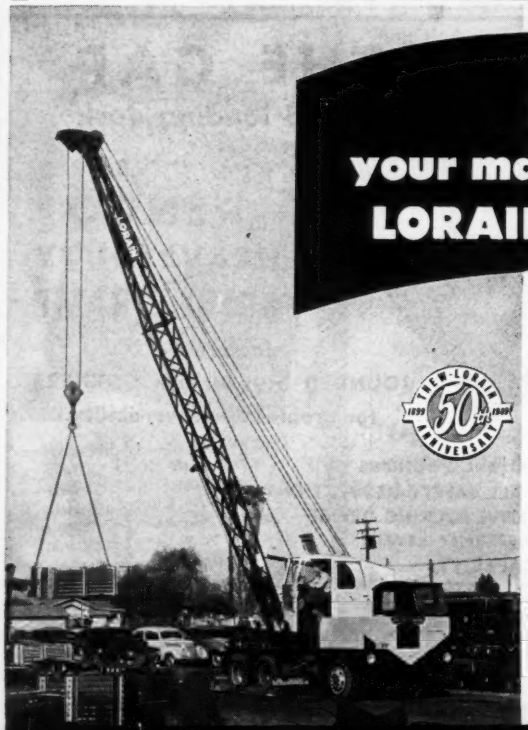

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Fast-Moving TL-20 Moto-Crane "collects" scattered material handling jobs — cuts costs.

WHEN it comes to handling plate, bundle or structural steel for Pacific Iron & Steel Co., Los Angeles, Calif., this TL-20 Moto-Crane "picks 'em up and lays 'em down" in double quick time. Traveling on a 6-wheel rubber-tire mounting at speeds up to 30 M.P.H. the TL-20 sprints from job to job at any point in the yard in a matter of minutes. A simple, fast switch to any one of more than 15 crane attachments enables the machine to handle whole hosts of jobs quickly, easily and with maximum safety.

Lorain rubber-tire cranes are available in both single engine self-propelled and two-engine moto-crane types. If you prefer, crawler mounting can be supplied.

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LORAIN CRANE HANDLING *VS* MAN HANDLING *SAVES MONEY*

TRUCK PLATFORM HINGED FOR BASKETED BURLEY TOBACCO

THIS powered truck has a specially designed hinged platform for handling basketed tobacco on auction-warehouse floors, which is said to have introduced far-reaching changes in handling procedures in markets dealing in burley tobacco.

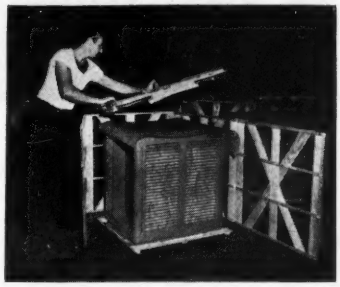
The grower consigns his offering to the auction floor, where the tobacco is stored in shallow baskets about five inches high. The basketed tobacco is moved many times between storage and the auction floor before it is transported to delivery. The traditional handling method was by "duck-bills",

manually propelled carriers which got the name from spade-like blades designed for insertion under the baskets. Since a loaded basket weighs between 500 and 600 lbs., it was not an easy job for the men to trundle the tobacco speedily over the floor, which was done in a crouched position because of the shortness of the vehicles. As many as three men would spot a load on a duck-bill.

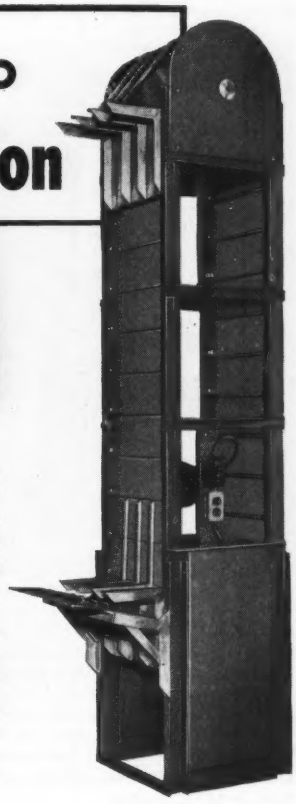
The adaptation of the powered platform-type truck shown here has a hinged platform which is lowered to the floor at the loading end, as illustrated. The tapered end, simulating the duck-bill design, is backed under the basket by the operator, who then raises the load clear of the floor without requiring assistance. The load is as readily slid off the inclined plane.

Because tobacco auctions are nervous affairs characterized by fast action, the truck manufacturer increased the speed of the vehicle to about six mph. Warehousemen have reported substantial operating economies with the new method. It is geared to the fast pace of tobacco auctions, and expedites the flow of the burley tobacco crop from the grower to the manufacturer.

WRAP UP THE COOLERS—At the Essick Mfg. Co., Los Angeles, bulky air coolers that weigh up to 680 pounds and stand as high as seven feet presented a packing problem. All models are now literally "wrapped up" with the type of prefabricated crate shown here. The packing starts on the assembly line when the outer cabinet is placed on the base. After leaving the line, a one-piece wirebound wrap-around mat that comprises the four sides of the crate is folded into shape after the top has been placed in position. The sides are closed by engaging and bending the opposing wire loops. Top and bottom are secured by cleats. —*Courtesy, Wirebound Box Manufacturers Association.*



A NEW WAY TO
Raise Production
with STEEL-PARTS STEEL BELT Elevating CONVEYOR



Now . . . a NEW way to raise production and employee efficiency . . . to cut unit cost and operating space! STEEL-PARTS new ELEVATING steel belt conveyor is unbeatable for sending parts or packages from floor to floor in a continuous flow . . . .lifts packages up or down . . . loads or unloads at desired height. Incorporates all of the famous features of STEEL-PARTS standard models. Let STEEL-PARTS engineers make specific recommendations concerning your materials handling problems. Mail the coupon today!

ENGINEERING DATA

- **BELT**—heavy 18 gauge steel.
- **WIDTH**—12 inches to 30 inches.
- **LENGTH**—5 feet to 30 feet.
- **SPEED**—Up to 50 feet a minute.
- **H.P. REQUIRED**—½ to 2 horsepower.
- **LOAD LIMIT**—(recommended) 50 lbs. per arm. This can be exceeded 50%.
- **PULLING LOAD LIMIT**—1000 pounds.
- **ARMS**—18 inch maximum length. Can carry a load up or down.

STEEL-PARTS MANUFACTURING CO.
DIVISION OF BLACKSTONE MANUFACTURING COMPANY

STEEL-PARTS MFG. CO.
4630 W. Harrison, Chicago, Ill.

Please send me complete information including engineering data and specifications on your Steel-Belt Conveyors.

Please have your representative call to discuss our specific materials handling problems.

NAME_____ POSITION_____

FIRM_____ ADDRESS_____

CITY_____ STATE_____

Better, Bigger Directory

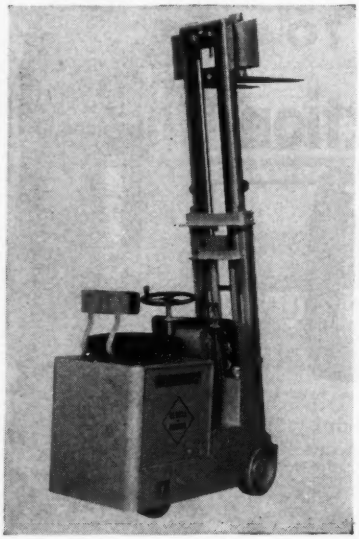
New, improved features will be incorporated in the 1949-1950 FLOW Directory. More definitions and sketches; expanded sections; new sections; revisions for easier and more complete reference. Send your order now ($5 per copy) for midyear distribution.

NEW PRODUCTS

For additional information on these products, write Dept. 5, Flow Magazine, 1240 Ontario St., Cleveland 13, or use postcard bound into this issue.

LIGHT-WEIGHT FORK TRUCK

NP1—A relatively small, light-weight, electric-powered fork truck has been developed by Elwell-Parker Electric Co. It is designed for operation in large merchandise warehouses and other manufacturing and shipping departments.



Weighing only 4550 pounds, it can manipulate loads up to 2000 pounds. It is valuable for continuous work where floors and elevators are of moderate capacity. Overall length with 30-inch fork is only 96 inches; width 32½ inches. It is able to turn in 60-inch intersecting aisles and 109-inch right-angle aisles. Maximum height of lift of fork is 121½ inches.

MAGNETIC SEPARATORS

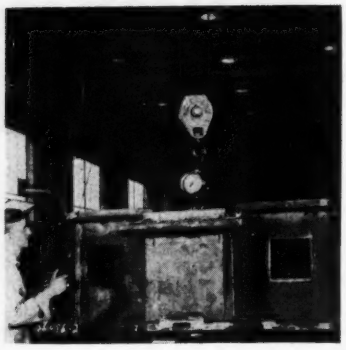
NP2—The Homer Mfg. Co., Inc., has announced an addition to its line of permanent magnetic separators. It is the Homer Power-Plus non-electric permanent magnetic pulley. The units are designed for use as head end or idler pulleys in belt conveyor systems. They are furnished in 57 standard sizes—in diameters of 12", 15", 18", 20", 24" and 30", with belt widths ranging from 4" to 60". The units are designed for the separation of tramp metals from materials during or before processing.

NEW TYPE CASTER

NP3—A new development in caster design and construction has been announced by The Fairbanks Co., which eliminates the king-pin on the new Series 21. This model is made with a Lock-Weld construction, which eliminates the king-pin and locks the curved top of the fork between the top and retaining plates so that the ball race sections remain properly aligned, even under very heavy loads. It is further stated that proper alignment assures easy swiveling.

SCALE FOR CRANES & HOISTS

NP4—A new basic theory for weighing that includes no springs or levers has been announced by Hydroway Scales, Inc. The system involves the static pressure principle. It has been first applied to a scale for cranes and chain hoists in conjunction with two, five and 10-ton models. Known as the Hy-



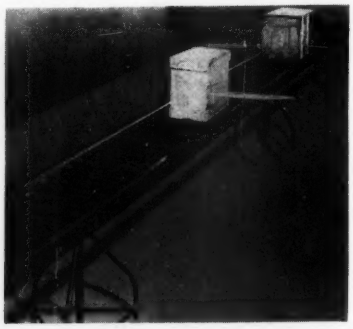
droScale, the unit is permanently sealed; without moving parts; unaffected by temperature; and is said to be accurate within one-half of one per cent. It automatically scales as the load is lifted, thus making accurate weighing a routine matter in innumerable applications, according to the announcement.

MOTOR FOR HAND TRUCKS

NP5—The Moto-Truc Co. is featuring a new and more powerful motor on its motorized hand truck equipment. It permits easy accessibility to all operating parts. Features include ball bearing motor, larger armature and field coils, high starting torque, lower draw on the battery and dead-man control. Central controls are in the roller handle. According to the release, the motor may be replaced within 15 to 30 minutes, and may also be applied to many of the older types of trucks manufactured by the company.

ROLLER CONVEYORS

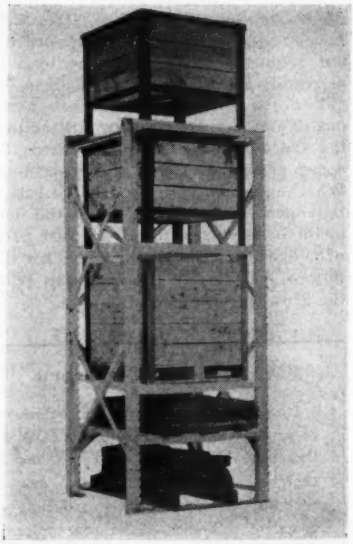
NP6—The Sage Equipment Co. has introduced a new line of gravity roller conveyors. They are made in five-ft. and 10-ft. lengths and widths from 6"



to 36" in increments of 2". Rollers are 2" in diameter of 16-gauge steel with special ball bearings on both ends. Roller axles are made of 7/16" hexagon steel and are set in hexagon holes in frames so that shaft or cone does not turn on the axle. Spring locks which hold axles in place allow rollers to be removed from the frame without the use of tools. For additional information, use post card bound into this issue.

ADJUSTABLE PALLET RACK

NP7—A new type adjustable pallet rack has been introduced by Rack



Engineering Co. Designed for storage of loaded pallets, the shelves are said

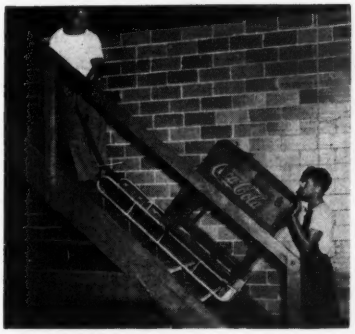
to be quickly adjustable for any height load without the use of bolts or wrenches. The shelf is solidly supported at four corners on the notched uprights, and can be adjusted upward or downward by fork lift truck. The base rack can be expanded in either direction through the use of additional units consisting of one upright section and necessary cross braces bolted into place. The rack may also be used for sheet metal or die storage.

LIFTING MAGNET

NP8—The Ohio Electric Mfg. Co. has come out with a lifting magnet employing a new type of welded construction. In this new model the outer ring and top plate are welded together on top, thus placing the weld in a position where it cannot be cracked or damaged by frequent blows against the outer ring. It is further stated that by eliminating the danger of cracks in the weld, the magnet remains hermetically sealed against moisture indefinitely. The new magnet is available in three sizes and is equipped with chain pins that fit into chain ears with square holes to eliminate friction. The weatherproof, insulated shell is of iron construction.

HAND TRUCK

NP9—A new type hand truck, the Cart-Sled, is being manufactured by Baughn & Zent, Inc. The unit is designed to move heavy loads up and down stairs, into trucks and over curbs on its tubular steel runners. It also may be used as a conventional hand truck when operated on its two 5" solid rubber wheels. Features include brazed joints for added strength; cadmium plated for rust resistance; takes up only 6" space



MATERIAL HANDLING UNITS
THAT CUT DOWN PRODUCTION COSTS

Fig. 460: The Trojan Tractor (Monorail Type) Motor Driven Pusher and Puller for speeding-up travel of hoist and other hand traveled units. *Bulletin 810*

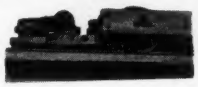


Fig. 470: The Trojan Tractor (Top Mounted Track Type) for power traveling existing hand cranes. *Bulletin 810*

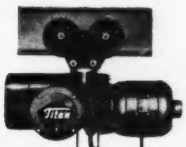


Fig. 401: The Titan Hoist 250 lbs. to 2000 lbs. The *little* hoist with *Big Hoist* design and construction. *Bulletin 801A*

Fig. 71: Hand Traveled, Single Beam Crane. *Bulletin 695*

Fig. 372: Electric Winch; capacities up to 6000 lbs. on a single line. *Bulletin 668*

Fig. 426: Motor Traveled, Single Beam Crane. *Bulletin 695*

Ask for Descriptive Bulletins and Prices

DETROIT HOIST & MACHINE CO.

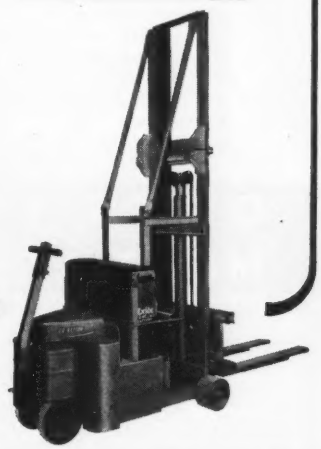
8205 Morrow Street • Detroit 11, Michigan

THE HIGHER THE LIFT, THE LOWER THE COST

with

GO-GETTER

POWER LIFTRUCKS

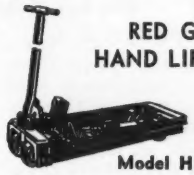


You can offset sky high "man-handling" costs when it comes to lifting, stacking and moving materials . . . by putting "GO-GETTERS" to work. Revolvator battery operated Liftrucks are single - hand - controlled, and require no more effort to lift loads a few inches or many feet.

"GO-GETTERS" walk away with work that would be physically and economically impossible with manpower alone. Labor savings and conservation of storage space through high stacking quickly repay a moderate first cost . . . and then continue to show over-all production profits.

Made in six types to meet all requirements. Let us help you save time, labor and money . . . with REVOLVATOR equipment exactly suited to your needs.

RED GIANT
HAND LIFTRUCKS



Model H Double Stroke

Capacities up to 15,000 lbs. Non-kicking balanced handle. Timken bearing equipped. Safe. Sturdy.

USE COUPON

REVOLVATOR CO.

8739 Tonnele Ave., North Bergen, N. J.

Kindly send full information on GO-GETTER Power Liftrucks . . . Red Giant Hand Liftrucks . . . . . .

Name .....

Position .....

Company .....

Address .....

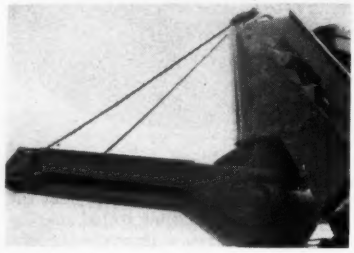
when standing in aisle or against wall. Models are available 47" and 57" high; toeplates 3½", 5½" or 9½" in depth, by 17" or 24" wide; 1½" web straps are available, if required, in 4' and 6' lengths.

ROLL-OVER ATTACHMENT

NP10—The Mercury Mfg. Co. has introduced a new Roto-Lift assembly for its two and three-ton Yak and Yank fork trucks. This assembly provides 180-degree rotation of forks in either right-hand or left-hand direction. It is powered from the hydraulic pressure system of the truck through flexible pressure lines and electric limit switches. Rotation of the fork carriage is accomplished by a double acting hydraulic cylinder and ram assembly. It has spur gear drive to the ball bearing mounted turntable on which the carriage revolves.

BUCKET LOADER

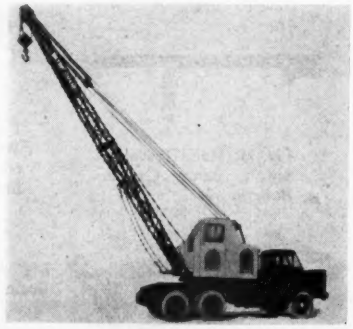
NP11—A new bucket loader has been announced by N. P. Nelson Iron Works, Inc. Features include a shorter base dimension to improve manueverability; elevator and discharge mechanisms engineered for "alongside" truck loading, and minimum headroom requirements. Rated capacity of the loader is two yards per minute. Renewable steel toothed feeder blades loosen the material and assure full loading for every bucket. A pivoted discharge, equipped with a belt conveyor, loads trucks as they pass alongside. Angle of discharge, regulated from operator's platform,



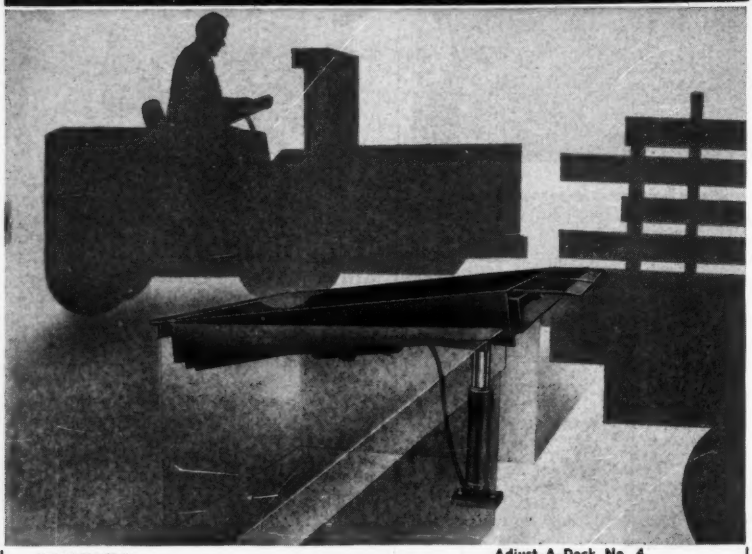
may be located in any position of the discharge conveyor's 180-degree arc of operation.

TRUCK-MOUNTED CRANE

NP12—A new ½-yard, 10-ton truck-mounted crane and excavator has been announced by the Wayne Crane Division of the American Steel Dredge Co. Known as the Model 44 Corsair, the machine travels at truck speeds, swings at 5½ rpm and is convertible to all crane and shovel attachments. The six-wheel, tandem-type carrier, built especially for crane mounting, is of 16-in. 45-lb. steel "I"-beam construction. Outrigger tubes are integral with the frame. Improved boom clearance and visibility are achieved by an offset, one-man cab and tapered frame ends. Other



DOES YOUR DOCK MEET ITS PROBLEM?



Patent Pending

Adjust-A-Dock No. 4

Only ADJUST-A-DOCK GIVES YOU ALL THESE ADVANTAGES

- Enclosed electric hydraulic unit mounted to under side of deck for easy installation and protection from elements or abuse.
- Three points of support. Hydraulic ram with ball and socket top and bottom to prevent strains. Platforms up to 10 tons capacity, unbalanced load.
- Specifically designed for loading platform problems. Throw-over bridges are in 2 sections for even support if truck is out of level. No loose dock plates required.
- Adjustable to existing dock height when not in use, unit becomes a part of the floor. Push button control, speed .7" per second.

Here is the unit for which you have been waiting. ADJUST-A-DOCK is flexible enough for any installation. Saves manpower, cuts time by handling large loads. Simple assembly. Alignment between truck and dock being constantly maintained reduces accidents and breakage. Eliminates bottlenecks by increasing dock traffic capacity.

Return Coupon for Full Details

Rowe Methods, Inc.
Cleveland, Ohio
Please send full details on ADJUST-A DEVICES
Name .....
Address .....

ROWE METHODS, Inc.
1743 EAST 25th ST.
CLEVELAND 14, OHIO

THE *First* TRUCK LOADER

CUTS DELIVERY COSTS 50%

ANTHONY LIFT GATE HYDRAULIC

First in sales—Thousands in use.
First in field proving—On the market 6 years. *First* in simplicity—75% fewer working parts.
First in features—More advantages to the user. See below*.
Write for literature and prices.

*"LIFT GATE" rests on ground. No protrusions to prevent easy loading.

*Loads from all sides at all levels with "Quick Detachable" Ramp.

*Non-sloping—Gives "*Level-lift*" to avoid loads rolling or toppling off.

*Close "Gate" easily with one hand. No power needed.

*Safety Latch locks up. "LIFT GATE" cannot be lowered accidentally.

*Lower "*Point of Leverage*" gives more power with ¼ less working parts.

ANTHONY CO., Dept. 908, STREATOR, ILL.

ELECTRIC WHEELS

Modernize Trucks and Trailers

A full line of wheels for baggage trucks, industrial trailers, floor trucks, mail carts and other portable equipment.

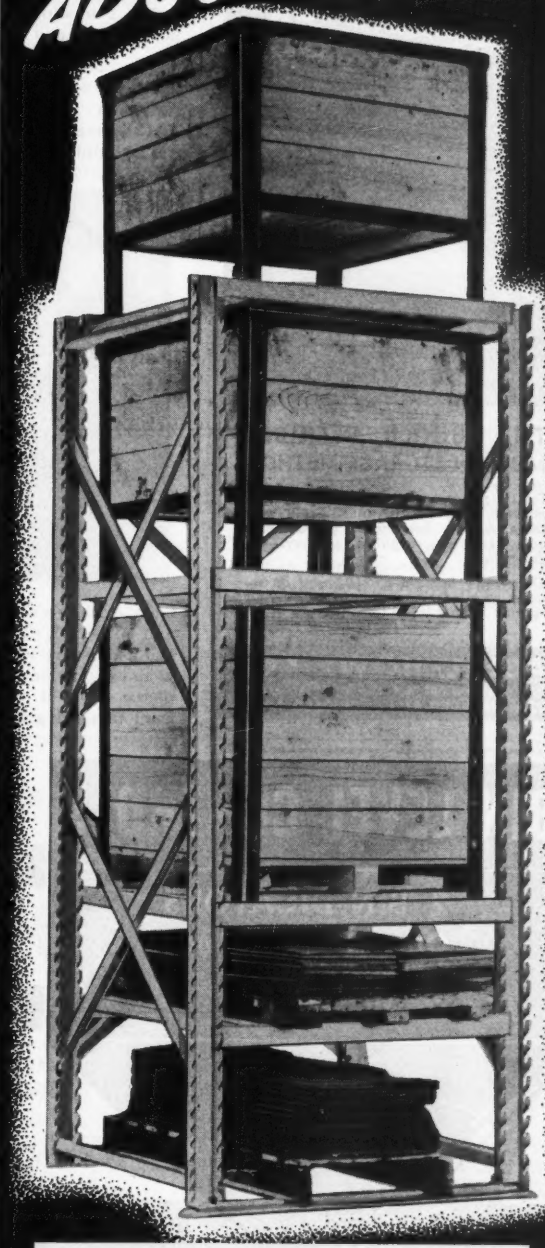
ELECTRIC wheels are furnished with or without roller bearings to fit your own axles or complete with axles. Steel tires, molded-on-tires, or pneumatic tires.

There is a full range of sizes and our experienced engineers are at your service.

Write us for full information.

ELECTRIC WHEEL CO., 2931 Spruce, Quincy, Ill.

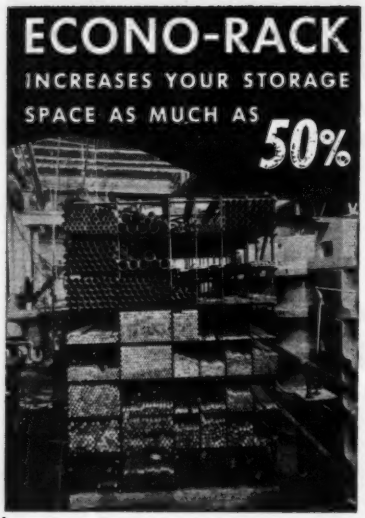
TRULY ADJUSTABLE!



This pallet rack is fully adjustable without the use of bolts or wrenches! Your fork lift truck can quickly and accurately position shelves to the proper spacing.

Racks can quickly be installed in banks of any desired length through the use of additional uprights (standard height 9') bolted to either end of the rack section shown. This is the solution to your pallet storage problem. Write us for details.

RACK ENGINEERING COMPANY
925 LIBERTY AVENUE
PITTSBURGH 22, PENNSYLVANIA



THE RUGGED, FLEXIBLE MODERN STORAGE METHOD

For storage of bar steel, plates, palletized material, etc. ECONO-RACK has a wide range of uses. Saves space, provides easy access to stock, simplifies inventory. Inexpensive.

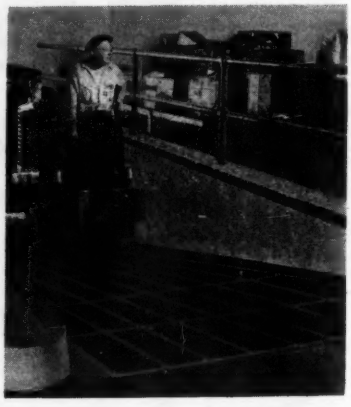
Descriptive bulletin ER-102 sent on request or ask for quotation based on your specific requirement.

ABELL-HOWE CO.
Engineers—Contractors—Manufacturers
53 W. JACKSON BLVD. • CHICAGO 4, ILL.

carrier features include tandem drive, eight-tire or 10-tire traction and a differential lock for heavy off-the-road work. An auxiliary transmission provides 10 speeds forward and two reverse. For additional information, use post card bound into this issue.

SAFETY WALK

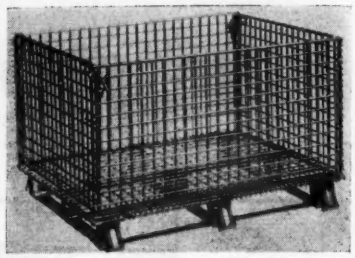
NP13—A new type of Safety-Walk, non-slip material for stairs, ramps, catwalks, building entrances and floors, has



been announced by Minnesota Mining and Mfg. Co. The material, Type B, has a pressure-sensitive adhesive which enables it to be laid as easily as cellophane tape, it is said. It consists of hard mineral grains surface-coated on a toughened fabric, affording non-slip safety underfoot even when completely covered with water, mud, oil or grease. It is provided in factory-cut stairway strips, brick-size cleats, larger all-purpose cleats and in roll form.

PALLETAINERS

NP14—Designed for many uses is this Palletainer manufactured by the Union Steel Products Co. Models are designed to serve as storage or handling containers for production materials, or supply bins for working materials. They are constructed to stand up under the weight of castings, forgings and other



heavy parts. All-steel construction makes them fireproof, rust-resistant and easy to clean. Light weight, they can be loaded and stacked safely because they interlock in tiers. They may be handled by a fork or hand lift truck. Their sides can be folded down when not in use. 40" x 48" x 4⅞" floor height

BIN-LEVEL CONTROLS

2 BIN-DICATORS
Often Replace 1 Man

BIN-FLO
Aerating Units
Keep Things Moving

ECONOMICAL MATERIAL CONTROL

DEPENDABLE BIN-LEVEL INDICATION

Mail this Coupon

THE BIN-DICATOR CO., 14615 E. Jefferson, Detroit 15, Mich.

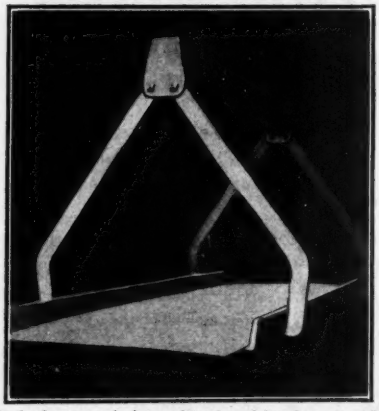
Please send new 20-page catalog giving complete information and specifications on BIN-DICATORS. Also please send information on BIN-FLO Aerating Units.

Name_____

Address_____

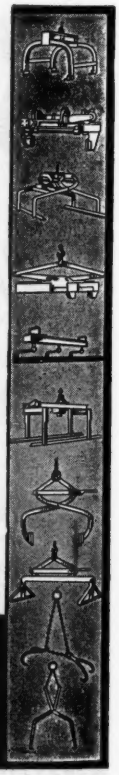
City_____ Zone____ State_____

Low Price 'Pinch Hitter'
FOR HANDLING SHEET STEEL



Ideal where use is intermittent and head room unimportant. Easily operated by one man where speed is not vital—and by two where it is. A definite improvement over chains, yet costs about two-fifths as much as our next best "low headroom" type. Write for particulars of No. 1137.

Other Styles for Other Uses



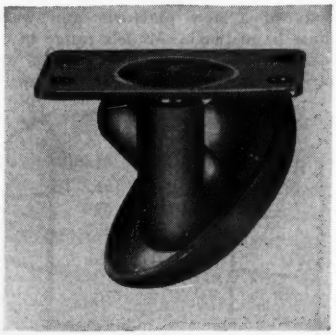
COMPLETE YOUR CRANES WITH MANSAVER GRABS

Mansaver Industries, Inc., 3103 East St., New Haven, Conn.

with a siding 24" high, they have capacities of 2000 to 4000 lb.

CREEPER CASTER

NP15—An improved leaning-type caster is being introduced by the Mohler Engineering Co. It features a forged axle which is said to eliminate twisting and reduce wheel wear. The unit has



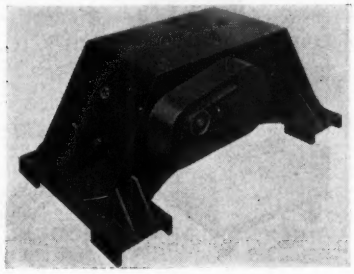
wheel dimensions of 1⅝" to 1¾" and an overall height of 2⁹⁄₁₆". Known as the Loscoot, it has a standard mounting pad to fit any type creeper. Both pad and wheel are made of heavy gauge steel and the supporting axles are grease packed.

CLAMP TRUCK

NP16—For the handling of bulky items such as oil drums, barrels, wood boxes, etc., the Baker-Raulang Co. has introduced the Baker Clamp Truck. This unit utilizes hydraulically operated clamp arms to grip the load for lifting and transporting. The clamps are of all-welded steel construction with dual double-acting hydraulic cylinders. They are mounted on the truck lift carriage with the control valve mounted in the operator's compartment. Connecting hydraulic lines are high-pressure hydraulic hose clipped to lift chains. Inward and outward movement of the clamp arms is regulated by a control lever. Pressure relation is controlled by the operator.

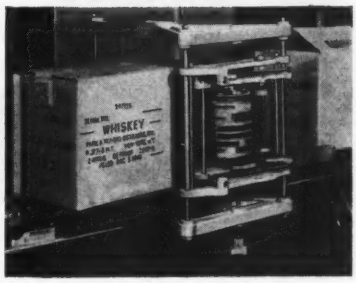
CAR SHAKER

NP17—A new car shaker has been announced by the Allis-Chalmers Mfg. Co. The unit is designed for emptying coal, cinders, ore, slag, coke, sand and gravel



and other granular materials from drop-bottom gondola cars. Weighing

ELIMINATE HAND STENCILLING!



This carton marker automatically imprints cartons as fast as they can be pushed through the printing device. Uses easily interchangeable rubber type. Has built-in, self-inking reservoir. Will handle various sizes of cartons. Adaptable to conveyor line or packaging machinery. We also make units to print knock-down cartons.

We specialize in standard and custom made automatic marking equipment built to fit individual needs. Designers and Builders of machines for coding, dating or marking carton boxes, packages on production runs.

INDUSTRIAL MARKING EQUIPMENT CO.
Dept. F
7 East 48th Street
New York 17, N. Y.

UNIT 357 Mobile Crane

- *It's Self-Propelled*
- *It Rides on Rubber*
- *It Has 1001 Uses!*

5 TON CAPACITY— 7 TON WITH OUTRIGGERS

UNIT 357 Clamshell unloading sand.

Fast, versatile industrial crane with plenty of LIFT ability . . . ideal for moving castings, steel, scrap, coal, lumber or even machine tools. Travels anywhere . . . on paved surfaces, cinders or just plain mud . . . gets there in a hurry. Available with crane hook, clamshell, or magnet . . . quickly convertible to any other attachment. *Operated by ONE man* . . . powered by ONE engine . . . controlled from ONE position in cab.

Features include: *Hydraulic steering . . . Air-actuated hydraulic brakes . . . One-piece cast gear case completely encloses and oil-seals all working parts. FULL VISION CAB,* pioneered by UNIT, provides 360° visibility for greater safety and efficiency.

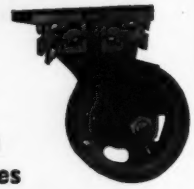
UNIT 357 Magnet used in loading scrap metal.

UNIT 357 Crane lifting bar stock.

You can tell it's a UNIT by the FULL VISION CAB. There's no other cab like it.

UNIT CRANE & SHOVEL CORP. 6531 WEST BURNHAM STREET MILWAUKEE 14, WIS., U.S.A.

SWIVEL CASTERS



- Double Ball Race
- Molded-On Rubber Tires

High pressure lubricated fittings. Grease retaining chambers, large diameter balls in upper outer races take load as well as side thrust. Races protected from dust and water by over-lapping lips on plate or hangers. Molded-on, easy rolling, heavy duty rubber tires to protect floors. We serve resale dealers and original equipment manufacturers.

SPECIFICATIONS

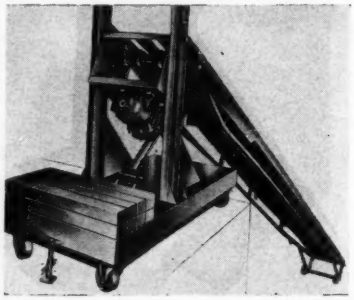
Caster No.	Wheel Size	Bolt Hole Centers	Height	Capacity
46SRE4	4 x 2	3 x 4	5⅝	180 lbs.
46SRE5	5 x 2	3 x 4	6¾	250 lbs.
46RD6	6 x 2	4⅛ x 5½	8	310 lbs.
46RF6	6 x 2¼	4⅛ x 5½	8⅜	360 lbs.
46RG8	8 x 2½	5 x 6½	10½	530 lbs.

Buffalo CASTER & WHEEL CORP.
182-6 Breckenridge St., Buffalo, N. Y.

approximately five tons, the shaker is designed to fit all sizes of gondola cars manufactured in the United States. It has an all-welded 11 by 5 by 4-ft. 4-in. steel body which is lowered to rest on the car body flanges by a hoist or crane. Vibratory motion is transmitted to the car through an eccentric shaft mounted within the shaker body on heavy-duty bearings. The unit is driven by a totally-enclosed, high-torque, rubber-mounted motor located inside the shaker body for full protection.

SHIP CONVEYORS

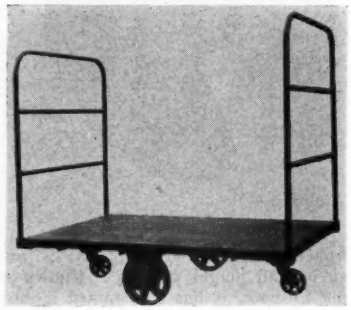
NP18—A line of portable chain conveyors is being manufactured by Wehle Conveyor Co. They are designed for unloading ships and handling goods between decks. The conveyors are raised



and lowered by a hydraulic lift—some models will operate up to 40 degrees. In standard 24-inch width, the models may be ordered in various lengths. Each chain is capable of 660 pounds of working load. Chains are detachable. The units handle ship stores, medium size crates or cartons, fresh or canned fruit and vegetables, laundry, baggage, etc.

PLATFORM AND WAREHOUSE TRUCK

NP19—The Fab-Weld Corp. has introduced a new platform and warehouse hand truck. Models range in capacity from 1000 to 4000 pounds and have all-steel platforms made up of



heavy-gauge formed sections. These are welded into a chassis which is mounted on roller bearing wheels and swivel casters. The units are equipped with end racks, either angle or pipe. Available with balanced-type running gear or non-tilt gear, models are manu-

(Turn to page 80)

*Houdaille** CONVEYOR will work for you

Originally designed to handle sludge and waste matter in the metal working industry, the Houdaille Conveyor is being used to handle a wide range of materials handling applications.

This automatic loading and continuous materials transport is adaptable to transporting any solid or fibrous material which will settle to the bottom of a tank or hopper.

If you have a materials transporting problem, write to 100 Wabash Avenue, Lebanon, Indiana in care of

HONAN-CRANE CORPORATION
a subsidiary of **HOUDAILLE-HERSHEY CORP.**

HERE ARE A FEW OF THE SUGGESTED USES FOR THE HOUDAILLE CONVEYOR

METAL WORKING (wet or dry)
Metal Chips
Cast Iron Dust
Aluminum Oxide
Abrasive Sludges from settling tanks
Honing—Grinding—Quench Scale
Sludge from Metal Washing Machines

PACKING PLANTS
Cracklings
Meat By-products
Bone Meal

SOAP MANUFACTURING
Soap Chips and Granulors
Cleansing Powders

FOUNDRIES
Moulding Sands

REFRACTORIES
Ceramic Powders
Aggregates
Fire Clay

MANY OTHERS—such as Fly Ash, Sludge from Air Washers, Sawdust, Wood Chips, etc.

The *Houdaille** CONVEYOR

*Pronounced Hoo-dye

LITERATURE AVAILABLE FROM ADVERTISERS IN THIS ISSUE

(Check corresponding numbers on the enclosed card for the free literature listed below)

A-1. UNION WIRE ROPE CORP. will send you bulletins and circulars on types, installation and maintenance of wire rope.

A-2. GENERAL BOX CO. Information on various types of shipping containers is offered in the company's new book, "The General Box."

A-3. CHISHOLM-MOORE HOIST CORP. is offering its CM Catalog, which describes the features of the CM Meteor and Comet hoists.

A-4. THE THEW SHOVEL CO. "Lorains in Industry" gives information on the company's cranes and their industrial applications.

A-5. INTERNATIONAL PAPER CO., BAGPAK DIVISION. Booklet No. 100A is entitled "Quick Facts on Bagpak Machinery and Multiwall Paper Bags."

A-6. TOLEDO SCALE CO. will send you bulletin 2021 on its Printweigh Scales.

A-7. STEEL-PARTS MFG. CO. is offering general information, specifications and engineering data on its Steel-Belt Conveyors.

A-8. THE FAIRBANKS CO. Catalog No. 50 contains information on the company's line of hand and platform trucks.

A-9. CURTIS MFG. CO. Bulletins are available on air hoists, air cylinders and air compressors.

A-10. BOND FOUNDRY & MACHINE CO. will send you Catalog K-38 which describes its line of all-steel casters.

A-11. THE STANLEY WORKS. A folder is offered on the Ace Strapping Tool.

A-12. GLOBE HOIST CO. Bulletin F1 gives information on the Globe Production Lift, machine feeding equipment.

A-13. CONCO ENGINEERING WORKS. Data is available on the company's line of hand-powered and electric cranes, hoists and trolleys.

TRADE MARK

See LIGHT-WEIGHT
RAZORBACK
BRAND
PALLETS

If your pallet loads do not exceed 2,000 pounds, we can supply you with a light weight pallet that will give long service with low maintenance cost. They weigh 20% less than standard pallets and are lower in price.

Increase the life of your pallets 25% to 50% by specifying rounded corners. This is a great pallet improvement and also reduces damage to palletized merchandise.

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P.O. Box 794-A Phone 6474
PINE BLUFF, ARKANSAS

ELECTROLIFT *speeds production*

because you can move materials much quicker. Easy one-man operation handles loads up to 6 tons . . . frees manpower for other assignments. This worm-drive electric hoist performs quietly and economically. Savings accumulated with an ElectroLift will more than pay for its installation. Complete details on the model that suits your capacity, speed and plant layout needs will be supplied by your nearby ElectroLift representative, listed in the classified telephone directory. Or write direct to:

ELECTROLIFT, INC.
30 Church Street, New York 7, N. Y.

MEMO

No matter what your tramp metal problem may be, there is a Homer permanent magnetic Separator to suit your needs

see Homer first for
PLATE TYPE SEPARATORS - PULLEYS
DRUMS - PNEUMATIC HUMPS
LIQUID TRAPS - PORTABLE UNITS

In HOMER Permanent "non-electric" Magnetic Separators, you get only the "finest" of materials combined with "proven" design.

Homer engineers are thoroughly qualified to analyze your tramp metal problems and to make processing recommendations. Let us help you —write us today.

Homer **The HOMER MANUFACTURING CO., Inc.**
Dept. I-11 LIMA, OHIO

Producers of Magnetic Separator Equipment Since 1923

The publications featured on these pages were written by experts. They are FREE publications. To obtain these use the postcard bound into this issue.

25—Railroad Devices . . . A 12-page booklet illustrating and describing its line of railroad devices and related industrial equipment has been published by the Nolan Co. Included is its portable car block; end rerailer; heavy-duty rerailer; and portable derailer for railroad safety service. Other products described are box car door openers; puller jacks and load binders; track braces; and gear and wheel pullers.

26—Lift Trucks . . . The Barrett-Cravens Co. has released a new 28-page catalog. It presents illustrations and description of its line of lift trucks in capacities from 1000 to 15,000 lb. Design drawings and specifications are included. Close-up views show the mechanical features of the single-stroke hand lift trucks. These features include: rear axle construction which provides an oilless bearing the entire width of the truck; a spring handle hold-up which prevents handle from falling to the floor when not in use; roller bearing latch catch that provides positive engagement without binding or wear; and positive engagement of handle latch and lifting lever, with no foot treadle nor manual effort required.

27—Load-Handling Methods . . . Industrial Logistics In Food is the name of a new booklet issued by the Elwell-Parker Electric Co. Action pictures illustrate modern material handling methods by means of electric power trucks in procurement, processing and distribution of food products. The literature tells how electric power trucks are used in receiving, processing, packing, warehousing and shipping. This booklet is one of a series dealing with logistics in basic industries.

28—Power Trucks . . . Bulletin 166 illustrates and describes power lift trucks manufactured by The Revolvator Co. The models include straddle-type high lift; fork-type high lift, platform-type high lift; and low lift platform and pallet types. The folder includes dimensional drawings, specifications and operating features.

29—Straddle Truck . . . A 16-page, two-color catalog has been released by the Hyster Co. It describes the revised Model "M" straddle truck with its improvements in engineering and design. The unit now has a greater capacity—18,000 instead of 12,000 lb.—and greater visibility for the operator. Model views and operational photographs show the truck carrying a variety of materials such as lumber, machinery, angle iron, rough castings, and other unit packages.

30—Belt Conveyor . . . The Island Equipment Corp. has issued a new bulletin on its Styl-O-Veyor, portable belt booster. Included are photographs of various positions of the Senior and Junior models and specifications of both. The Senior model is available with belt widths of 14" and 24" with an overall bed length of 20'4". The belt speed is 60' per minute. The Junior model has a belt speed of 50' per minute and can carry a maximum total load of 400 lb.

31—Casters . . . Industrial casters are the subject of a new 20-page catalog available from the Rose Truck and Caster Co. Nine series of casters are pictured and described, including swivel and rigid models. Engineering drawings and specifications are given. Maximum load ratings range from 325 lb. to 2500 lb. The literature also contains information on the company's line of wheel assemblies which have load capacities ranging from 325 to 10,000 lb.

32—Line Marker . . . Joseph D. Grigsby Co. is offering a pamphlet on the Mark-Rite Paint Marker. The company states that the unit is light-weight, easily operated and portable. It is designed to paint guide lines of all types in factories, warehouses, docks, terminals, public utilities, etc. A line drawing shows a breakdown of the model's component parts. Application pictures and specifications are included.

33—Trolley Hoists . . . David Round & Son has issued a brochure describing its line of hand trolley hoists, designed for operation in close head room. When its hook is raised to maximum height, its shank touches the base of the beam. Head room is reduced to the length of the hook only. The models are manufactured in 13 sizes, with capacities from one to 24 tons. The literature includes engineering drawings, specifications, operational photos, and general descriptive data.

34—Conveyors . . . Bulletin No. MD 48, offered by the Mathews Conveyor Co., presents its line of portable wheel, roller, level, inter-floor and portable belt conveyors. Wheel conveyors are offered in five and 10-ft. sections with four-rail construction; roller conveyors in aluminum or steel sections come in five and 10-ft. lengths. Also shown are supports for the portable conveyors, ball transfers, and stevedore dollies. Line drawings, photos, dimensions and operating features are given in detail.

35—Service Trucks . . . A four-page pamphlet, available from the Wenthe-Davidson Engineering Co., Inc., describes its line of service trucks. The units are of all welded construction; have roller-bearing-mounted machined wheels; streamlined corner bumpers; and roller-bearing caster wheel swivels. One model is designed for carrying various types of shop boxes, while other models may be fitted with a channel-steel bar framework for carrying units, or with welded or detachable handles at each end for transporting flat stock. The literature includes photos of component parts plus application views.

36—Bulk Highway Trailers . . . The Gramm Trailer Corp. is offering a three-color six-page folder on its line of custom built highway trailers for handling pulverized materials. The latter include cement, soda-ash, gypsum, chemicals, lime and various types of powders. By aerating materials, flow is possible at an angle as low as four degrees. Clean dry air is furnished by an impeller type blower. Controls, mounted near the unloading chute, permit unloading up to 25 barrels per minute. Material coming out of overhead pipe or chutes is sufficiently aerated to seek its own level. Carriers may be loaded from one or two roof manholes. The literature contains many installation photos and data on operating features.

37—Conveyors . . . Available from the Conveyor Specialty Co., Inc., is a catalog illustrating and describing its line of belt and roller conveyors. Floor, ceiling and level belt conveyors are pictured with specifications, engineering drawings and individual features. The take-up, intermediate and drive units are discussed in detail. Also included is information on cleated, trough and slider belt, and wire mesh conveyors. Another section of the catalog deals with gravity roller conveyors. Accessories are described in detail.

38—Industrial Wheel Tractors . . . A 24-page booklet released by the International Harvester Co. It describes a line of tractors and tractor engines, including information relating the correct equipment to the type of job undertaken. Illustrations of all items are included.

39—Canning Conveyor Belts . . . A catalog section by the B. F. Goodrich Co. on its canning conveyor belts. Con-

struction and specification data are given, as well as operating suggestions. Proper care of the belts is also covered.

40—Wrapping Bakery Products . . . An illustrated pamphlet on two machines for wrapping bakery products is available from the Lynch Package Machinery Corp. Both models require only two operators—one to feed, the other to take away wrapped goods. One machine wraps packages 6½" x 2½" x 1¼", the other 3" x 2¼" x 3". Both handle from 75 to 80 units per minute.

41—Hand Trucks . . . Arrow Products Inc. has issued a pamphlet illustrating its line of hand trucks and truck parts. Each model is pictured together with its features, specifications and uses.

42—Shovel-Cranes . . . A 12-page brochure is available from the Michigan Power Shovel Co. Its line of shovel-cranes is pictured in action, illustrating many different operations of the various models. A general description of construction details of all models is included.

43—Manganese Steel Chain . . . The principal applications of Amsco manganese steel chain to various handling operations is the subject of a 28-page bulletin issued by the American Manganese Steel Div. of the American Brake Shoe Co. Its uses with elevators, conveyors, steel industry, dredging, saw and paper mills, drag conveyors, draglines and special drives are pictured.

CONCO HANDLING EQUIPMENT

CONCO TYPE DM OVERHEAD ELECTRIC CRANE

● **WRITE today for complete information on the CONCO line of hand-powered and electric cranes, hoists and trolleys — a complete line, tried and proven for over twenty years. CONCO engineers are qualified to recommend the right type of handling equipment for faster, more economical production in your shop. Write us now, and take advantage of our long experience in moving more materials, faster and at less cost.**

CRANES • HOISTS • TROLLEYS

Division of H. D. Conkey & Co.

CONCO ENGINEERING WORKS, 38 Grove St., MENDOTA, ILL.

Try *this* in your plant

★ LENGTH 53"
★ WIDTH 22"
★ WEIGHT 29 LBS.
★ CAPACITY 1,000 LBS.
★ 8" DIA. BALL BEARING RUBBER TIRED MAGNESIUM WHEELS
★ TOW PLATE STEEL 22" x 6" OR 9" DEEP

Write for Complete Details

A 29 lb. Hand Truck with 1,000 lbs. Capacity!

MAGCOA HAND TRUCKS
Made of Magnesium

Save time . . . save effort . . . save money in handling your materials with MAGCOA Hand Trucks. They're so light and durable you'll hardly believe it. You can lift the largest one easily with one hand . . . yet they feature rigid, durable strength greater than in much heavier steel trucks. Lightweight extruded tubular magnesium construction assures maximum safety in rugged, shock absorbent sturdiness. Available for smaller capacities, weighing 14 lbs. and 9 lbs.

Some other MAGCOA products are:
Dockboards, Barrel Skids, Grain Shovels and Industrial Ladders.

Made of Magnesium

MAGNESIUM COMPANY OF AMERICA
East Chicago, Indiana

EASTERN DIVISION: 30 Rockefeller Plaza, New York 20, N. Y. • WESTERN DIVISION: 831 S. Flower St., Los Angeles 14, Calif.

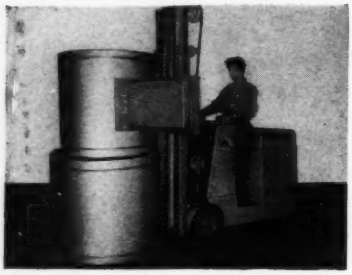
NEW PRODUCTS . . .

(Continued from page 76)

factured with rubber tires, plastic or semi-steel wheels. Platform sizes range from 24″ x 48″ to 48″ x 96″.

ROLL HANDLING POWER TRUCK

NP20—Manufacturers and handlers of paper rolls will be interested in the new Lewis-Shepard roll handling power truck. With a capacity of 1000 pounds, it picks up, moves and deposits rolls in a vertical position. Self-centering rubber lined grip pads line the two clamp-



ers which close by adjustable tension springs controlled by the operator. The arms are opened hydraulically but a safety device prevents the load dropping through the loss of hydraulic pressure. The roll clamper attachment can be added to any of the company's power trucks. Additional information may be had by using the card bound in this issue.

BIN SHAKE-OUT VIBRATORS

NP21—Designed for installation on almost every type of hopper and storage bin is Type F pneumatically-operated vibrator manufactured by the Cleveland Vibrator Co. The unit is said to prevent the arching-over and plugging of sand, coal, grain, ore, lime slag and chips in bins having capacities ranging from one to several hundred tons. Type F vibrators are said to be suitable for either intermittent or continuous duty, and are available in six sizes which have piston diameters from 1¼ to four inches, overall widths from three to 7½ inches and overall lengths from six to 15 inches. Speeds of operation range from 2100 to 750 vibrations per minute.

INDUSTRIAL FLOOR PATCHING

NP22—A new industrial floor patching has been developed by the Flexrock Co. According to the release, applications which formerly required 1⅛″ to two inches of material need only ½ inch of this product. The result is less weight on floor understructure, less material required, and quicker application. The material is almost zero in calcium and other substances reacting to acids, and is highly acid resistant. Areas paved with the product are ready for any traffic the day after application. It is further claimed that surfaces patched with this material are unaffected by oil and grease.

CORRUGATED BOXES FOR SCRAP

NP23—New corrugated steel boxes for use with revolving head fork trucks are being manufactured by Palmer-Shile Co. The boxes are designed for handling scrap or forgings for dumping. Slots at two sides also facilitate convenient handling in dumping operations. Square corners give maximum interior box space. The design also permits conservation of floor space because of stacking.

NEW 1949-50 DIRECTORY

The first issue of the FLOW Directory of Material Handling Equipment and Accessories was received with great acclaim, and now orders are being accepted for the second, improved issue at $5 per copy. Distribution will be in mid-year of 1949. Several sections will be expanded and new ones added. Send your order now.

THE
FLORLINE
MARKING MACHINE

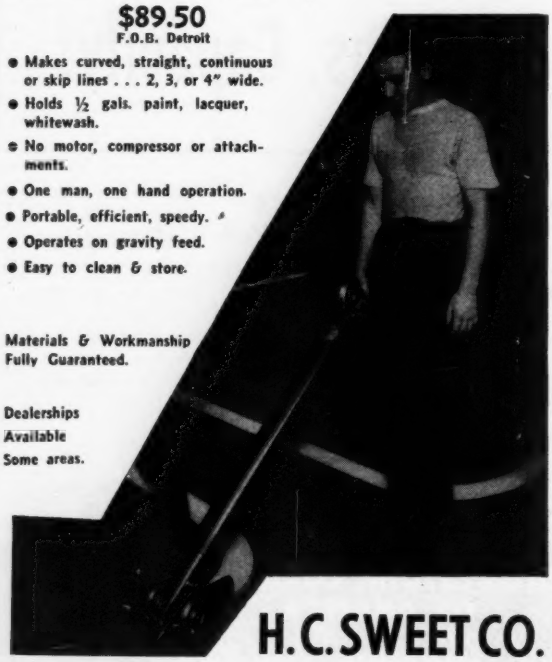
MAKES SAFETY AND PARKING LINES AT WALKING SPEED!

$89.50
F.O.B. Detroit

- Makes curved, straight, continuous or skip lines . . . 2, 3, or 4″ wide.
- Holds ½ gals. paint, lacquer, whitewash.
- No motor, compressor or attachments.
- One man, one hand operation.
- Portable, efficient, speedy.
- Operates on gravity feed.
- Easy to clean & store.

Materials & Workmanship Fully Guaranteed.

Dealerships Available Some areas.



H.C. SWEET CO.
12083 Woodbine Ave. Dept. F Detroit 28, Michigan

CUSTOM MOLDED RUBBER TIRES

Finest quality cured-on tires of natural, oil resistant, or hard rubber . . . semi-pneumatic and cushion tires . . . pressed-on tires for industrial trucks . . . applied to wheels supplied by you. Wide range of sizes . . . prompt delivery. Write for details.

Cured-on tires from 3x1½ to 28x4

RUBBER PRODUCTS DIVISION
PHOENIX MANUFACTURING COMPANY
JOLIET ILLINOIS

HAIRPIN HOOK . . .

(Continued from page 63)

four-button box that is conveniently attached to the carrying beam.

As can be seen from one of the photos, the control box is just far enough from the end of the hook to enable the operator to steady the load during travel, though this is not essential. However, after the hook has entered a trailer body the ability to manipulate the suspended crate is helpful in spotting it exactly where wanted. It takes one operator 90 seconds to pick up a crate, transport it to the highway vehicle, spot it, and return to the starting point.

Grabs and Slings. Refinements

While the hoist hook is attached to the lifting lug of the larger type of welding machines, up to four smaller ones are carried at one time by the use of a four-legged chain sling. Because of the relatively short distance from the carrying beam to the floor, the ring of the sling is never attached to the hoist hook. The hook is passed through different links in the chains, depending on the height of the crates. Any of these hoist attachments are quickly interchangeable.

So far, the giant hairpin hook has overcome the loading problem indicated in the opening paragraphs. It is to be expected, however, that any such innovation as this one is likely to require some refinements in the light of operating performance. For example, modifications in the lifting mechanism are being considered. Also, several different plans are being studied for extending the monorail trackage in order to service additional areas with the hairpin loader.

Traveling on the monorail, the hairpin loader glides into the trailer bodies, depositing the loads without effort in the farthest corners of the vehicles. Operators no longer exert themselves pushing the heavy machines into position. This is a major achievement in an operation such as ours that requires the shipping of several hundred Lincoln Electric welding machines daily.

HALF THE SPACE . . .

(Continued from page 58)

picked up by a twin-hook hoist that is mounted on an overhead bridge.

Special Paper Roll Truck

The semi and bleached sulphite paper is received in much smaller rolls than the kraft and jute stock, and its handling differs somewhat. A paper roll scoop truck, equipped with a revolving up-ender capable of rotating the load, is used. The roll is received in a horizontal position and the loading is effected by crowding the load while the scoop is tilted forward. The scoop consists of a rounded and bevelled plate approximately 47 inches wide and a chisel plate-type tongue at one end. When the load is being carried in a horizontal position, it

Chicago's Largest Stock of Shop and Material Handling Equipment

● NEW ● USED ● REBUILT

- Gas & Electric Fork Lift Trucks
- Gas & Electric Platform Lift Trucks
- Hand Lift Trucks
- Pallet Lift Trucks
- Gravity Conveyor
- Wilkie Conveyor
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- Bar & Pipe Racks
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- Skids
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WE BUY SURPLUS SHOP EQUIPMENT

Complete Rebuilding Facilities For All Types Industrial Trucks & Equipment

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SALSBURY TURRET TRUCKS

With the Fully Automatic Drive Provide FASTER OPERATION, LOW MAINTENANCE and MAXIMUM MANEUVERABILITY.

TURRETEER

Yes, Salsbury Turret Trucks give you all three factors that are so important for those In-Between material handling jobs.

For all horizontal material handling work they team ideally with existing equipment such as conveyors, fork lift, and hand trucks. Finger tip throttle control with fully automatic transmission and clutch simplify operation. Four popular models to meet every requirement. Mail the coupon below for information.

BETTER ... in 5 important ways

1. **MAXIMUM MANEUVERABILITY.** A fully rotatable drive wheel provides a 360° turning radius.
2. **AUTOMATIC DRIVE.** No gear shifting—infinitely variable ratios from "low" to "high."
3. **FULLY ENCLOSED CUSHIONED POWER.** Rubber mountings absorb high frequency engine vibration.
4. **FLEXIBLY CONTROLLED THROTTLE.** Driver can operate truck without mounting platform, by simply touching throttle ring.
5. **ENGINEERED FOR LONG LIFE.** Brakes on all wheels. Tapered roller bearings, Wisconsin engine.

PALLETRUK

SALSBURY CORPORATION
1161 East Florence, Los Angeles 1, Calif.
Please send information on Salsbury Turret Trucks to:
Name_____
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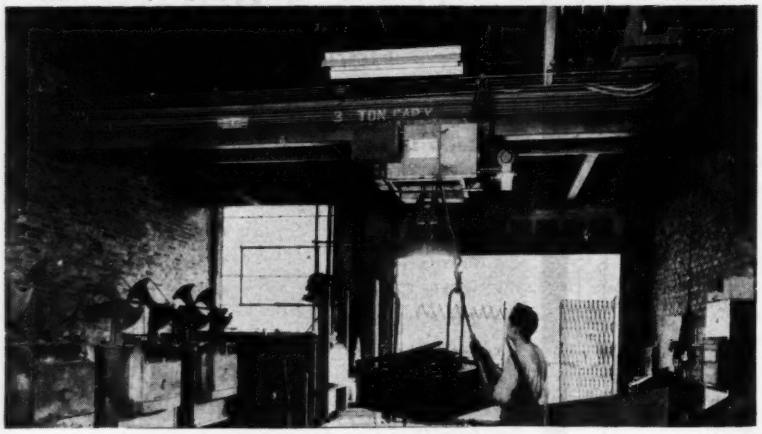
City_____ Zone____ State_____

SALSBURY CORPORATION
1161 East Florence
Los Angeles 1, Calif.

ABELL-HOWE CRANES
Lift Trouble Out of Your Plant



Abell-Howe Cranes are no prima donnas. They move loads on schedule, without a hitch, with a minimum of maintenance, year in, year out. Their advanced design and rugged construction are the work of crane specialists who have concentrated on overhead handling equipment for 25 years. That is why it will pay you to look into the complete line of cranes, runways, monorail equipment and hoists . . . and the engineering service . . . that Abell-Howe delivers. Write us today.

Ask Today For
Catalog C-102

ABELL-HOWE CO.
53 W. JACKSON BLVD., CHICAGO 4, ILLINOIS

CRANES AND RUNWAYS • MONORAILS • HOISTS • STORAGE RACKS

is cradled on the semi-circular surface. When the roll is up-ended to vertical, it is carried on the chisel plate. This operation is pictured in the photos. The operator revolves the scoop 90 degrees so that the load rests on its flat side. The load is then elevated and stacked as it is held in position by the tongue. It was found that while this equipment is designed to stack and destack material without the aid of dunnage strips, the use of the latter speeded up the operation sufficiently to warrant their use. After a roll is removed from storage, the cradle is revolved from vertical to horizontal in order to load it into the box making machine.

The use of the methods here outlined permit the Hankins Container Co. to maintain a 2,500 ton normal inventory in one half the space previously used.

INSTITUTE NEWS . . .

(Continued from page 59)

the Material Handling Institute voted to change the name of the organization to American Material Handling Society, Syracuse Chapter. The group will affiliate with the newly formed national organization of the same name. W. D. Ackley of Oneida Ltd., V. E. Hall of Syracuse Supply Co., H. A. Carey of D L & W Railroad and A. J. Cole of Lamson Corp. were elected directors. The meeting was featured by a discussion of a production conveyor system at the Easy Washing Machine Corp., given by Plant Engineer Charles Losky. A panel discussion was also conducted on the "Economic Areas for Application of Various Types of Material Handling Equipment". Participating were C. A. Burton, Lamson Corp.; William Thom, Towmotor Corp.; and Harvey Sass, American Monorail Co.

AT A MEETING held recently in Newark, a constitution and by-laws were set up and a new group, the Material Handling Society of New Jersey was organized.

Albion QUALITY CASTERS
"THE BEST FOR LESS"
for every Industrial use

With Patent-Pending Rolled-in Ball Race

HEAVY DUTY CASTERS in Drop Forged Steel with Genuine Timken Thrust Bearing. 6" up to 12" Wheel Diameters.

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GLENS FALLS, N. Y.

The following were elected as officers: president, Richard A. McDonough, consultant; vice president, C. L. Lockhart, Shell Oil Co. Inc.; secretary-treasurer, T. Landenberger, L. Bamberger & Co. The group is designed to promote education and training in good material handling practices. Its meetings will be held on the third Wednesday of each month.

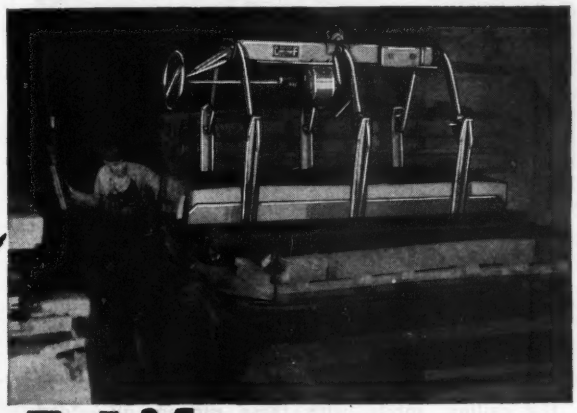
APPROXIMATELY 85 members and guests of the Northeastern Ohio Chapter, Cleveland, heard Robert W. Belt, manager of industrial engineering, American Greeting Publishers, at the April meeting. The title of his talk was "Cutting Material Handling Costs Through Methods Improvement". Specific examples of a number of improvements adopted by his company were presented. Belt was co-winner of the first prize in the 1947 FLOW Cost Analysis Contest. The Towmotor Corp.'s new 30-minute sound movie, The One Man Gang, was also shown.

OVER 105 members and friends attended the April Meeting of The Houston Chapter. They heard E. B. Mayfield, executive vice president of the Gulf Atlantic Warehouse Co. For the May program, the Chapter will visit the Hughes Tool Co., largest oil field drilling tool manufacturing plant in the world.

THE APRIL meeting of the Detroit Chapter heard C. F. Kells speak on "Practical Considerations in Applying Unit Load Methods". Kells is secretary of the Electric Industrial Truck Association. The May 16 session will be devoted to the election of officers. The group will also hear "Planning a Completely Palletized Operation", by Norman Cahners.

D. R. SIMMONS of the Elberta Crate and Box Co. was re-elected president of the Wirebound Box Manufacturers Association at the group's annual meeting. John R. Miller, T. R. Miller Mill Co., Inc., was named vice president.

One man and a C-F Lifter . . .



One man and a C-F Lifter handle the sheet steel stock in and out of storage in this plant with ease, speed and economy. C-F Lifters can pick up, carry and unload more loads per hour using less man and crane time than any other method. Note how closely a C-F Lifter piles sheets—this results in great savings in storage space. Jaw adjustments for carrying different widths of sheets are made in a few seconds by the operator—an important feature when varying sizes of stock are used.
C-F Lifters are made in sizes to handle from 2 to 60 tons in standard and semi-special designs.

Write for the bulletin "C-F Lifters." It illustrates the many cost saving advantages of these lifters.

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PROBLEM A:

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How to stack mixed loads without tying up low-level material.

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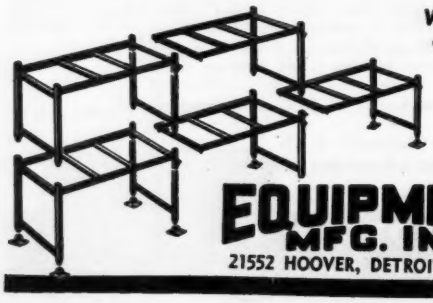

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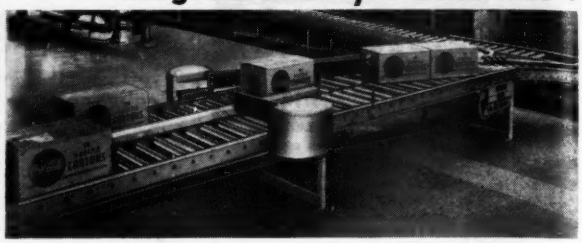

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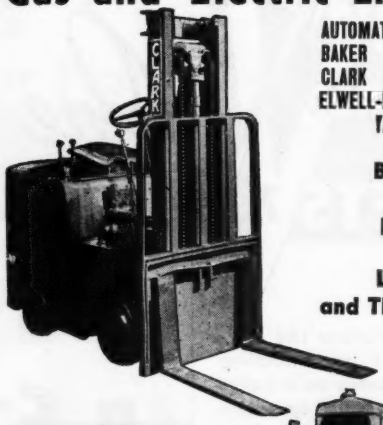

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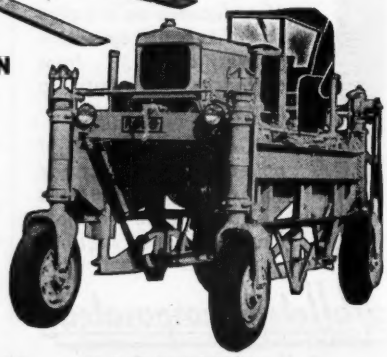

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Rates: for "Positions Wanted" $4.00 minimum, limit 25 words. For all other classifications $4.50 minimum for 25 words, each additional word 15c; boldface type or all capitals, $7.50 minimum for 25 words, each additional word 20c; limit 50 words. Box address count as five words. All insertions are payable in advance.
These classified columns are not intended for the advertising of new products by manufacturers, their representatives, or their distributors. These columns are limited to Help Wanted or Positions Wanted advertisements, and for the offering of used equipment by the users of such equipment.

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"FOR SALE: 275' slightly used Speedways gravity case conveyor. 10' straight sections, 15" wide overall, with ten 2" diameter wheels per foot; with 90 degree curves, adjustable stands; immediate delivery; can be inspected. Price reasonable. Box 5249."

One practically new Harry J. Ferguson Conveyor Belt (88 feet long) Complete unit with pulleys, gear reducer, and ¾ H.P. motor. Less than half price. Also several electric portable elevator lifts, excellent condition. C. B. Lathrop, 2514 Hermitage Road, Richmond, Va.

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400 corrugated galvanized steel tote boxes in excellent condition. 42" x 60", 37" overall height with 12" under clearance to permit two way platform truck entry. Slotted sides permit four way fork truck entry. Complete with tiering attachments. Sides of 12 gauge steel with 9 gauge steel bottoms. Subject to prior sale—all or in part—$40.00 each, F. O. B. our plant. LADISH CO. Cudahy, Wis.

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MATERIALS HANDLING ENGINEER—C. E. Thirteen years experience in Materials Handling and Engineering. Can set up complete systems. Available for responsible position. Flow, Box 5449.

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In every working hour it saves many precious minutes — a vital factor when wages are high. Workers like 'Budgits.' They make the job much easier. When they are rid of the fear of rupture, sprains, and overtiredness from lifting, all their energy goes into much greater production at much less cost.

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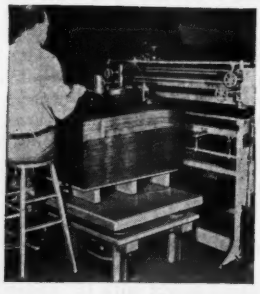

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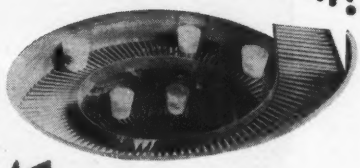

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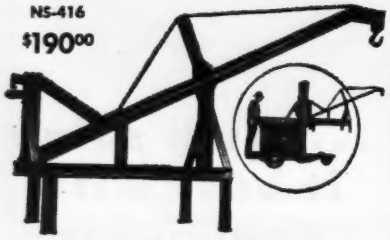

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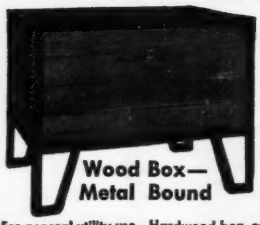

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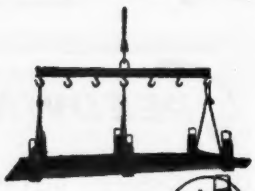

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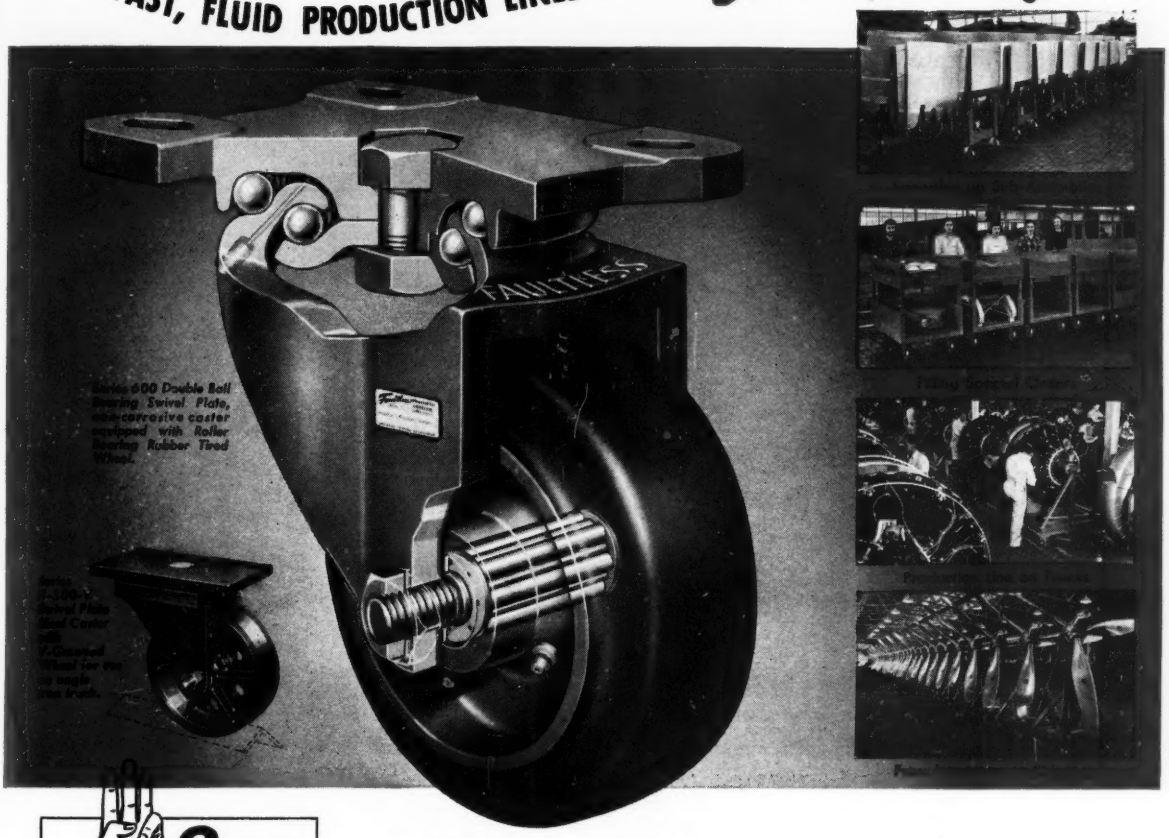

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